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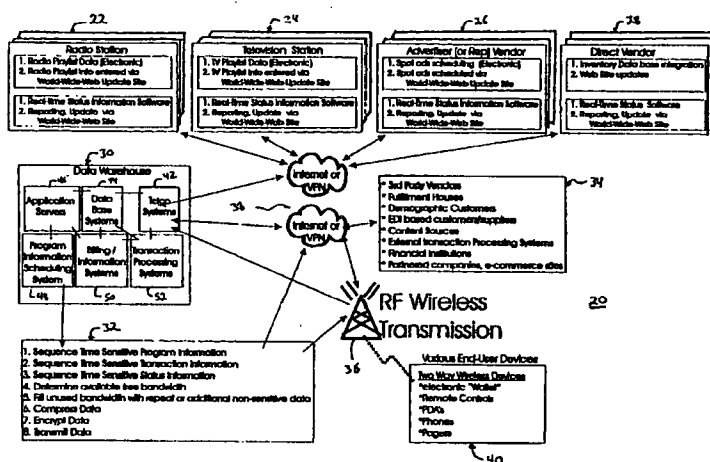
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(54) Title: SYSTEM AND METHOD FOR AN IMPULSE TRANSACTION USER DEVICE



(57) Abstract: A method and system for impulse transactions is provided. Products and services advertised, included as part of radio broadcast (22), television broadcast (24), Internet content (26, 28), or catalogs, or as part of a generalized list, such as the phone book, are provided to a user on a portable device (40). Upon hearing or seeing an advertisement or other content associated with the product or service (i.e., upon having an impulse to purchase), the user merely selects the information and creates a transaction. For example the user requests more information about a product or service or purchases the product or service. The portable device (40) provides two-way communication to obtain the product and service information associated with the broadcast or other provider of products or services. In some embodiments, the user device is included as part of another component, such as a computer, television, or radio.

## SYSTEM AND METHOD FOR AN IMPULSE TRANSACTION USER DEVICE

### RELATED APPLICATIONS

This application claims the benefit of the filing date pursuant to 35 U.S.C. §119(e) of Provisional Application Serial Nos. 60/118451 (A System And Method For The Selection, Purchase And Transmission Of Audio, Video and Data Content To An Electronic Apparatus), filed February 2, 1999 and 60/121881 (A System And Method For The Acceptance And Transmission Of Content Description And Interactive Information), filed February 25, 1999, the disclosures of which are incorporated herein by reference.

### BACKGROUND

This invention relates to electronic impulse purchase and interactivity devices. In particular, a multi-function device and associated network is established to allow impulse purchases, information requests and interactivity for various media and sources of products and services.

Impulse purchases of products and services are provided through store displays in traditional brick and mortar retail establishments. For example, candy, magazines and other items are often displayed near check out lanes of grocery stores. These displays are designed to induce an impulse purchase of the product while a shopper waits in line to purchase other products or services. The product is purchased by interaction with a cashier using a bar code reader and cash register inventory control or other form of manual currency for product exchange. The transaction may be further consummated by use of a credit card. However, the number of products arranged for soliciting impulse purchases is limited and additional sources of information about the products are not provided.

A broad range of products is provided on the Internet by Web Page content. However, the immediacy of any impulse transaction is limited by requiring a user to turn on the computer, connect with the Internet, search for and obtain content

associated with a desired product or service and then arrange for the purchase of that product and service. The Internet provides for limited impulse transactions because the user must first seek out the content.

5 In some embodiments, the Internet's capability to provide for product information and purchasing are combined with other modalities. For example, Internet content has been provided in association with cable systems or television broadcast systems. Such systems envision providing product information from the Internet in association with television broadcasts. However, the systems typically requires Internet browsing and the associated decline in the impulse to purchase  
10 while waiting to obtain information.

Internet capabilities have also been combined with cellular telephones and personal digital assistants. Using a limited screen display on a cellular telephone or personal digital assistant, Internet information is provided to a user. The user browses through Internet content and may perform Internet transactions using the  
15 cell phone. However, like the computer at home, the user is still required to sign on and browse for product or service information, reducing the effects of an impulse to purchase a product. The Internet content is not provided in conjunction or synchronization with any other product information or sources of an impulse to purchase. Furthermore, credit card information may be required to be provided in  
20 the same communications path used to obtain content, resulting in a credit security risk.

Other systems provide analog or digital broadcast interactivity. For example, product information is transmitted with a radio broadcast. A radio receiver then indicates this information, such as the name of a song, group, or  
25 album. However, the ability for impulse transactions is still limited.

## BRIEF SUMMARY

The present invention is defined by the following claims, and nothing in this section should be taken as a limitation on those claims. By way of introduction, the preferred embodiments described below include methods and

systems for performing or consummating impulse transactions. Products and services advertised; included as part of radio broadcast, television broadcast, Internet content, or catalogs; or as part of a generalized list, such as from the phone book, are provided to a user. Upon hearing or seeing an advertisement or other content associated with the product or service (i.e., upon developing an impulse to purchase), the user merely selects the information and requests a transaction. For example, the user requests more information about a product or service or purchases the product or service.

A portable device is used to provide user selection of product and service information. The portable device provides two-way communication to obtain the product and service information associated with the broadcast or other provider of products or services. Two-way communications also allows for the transaction to occur. In some embodiments, the user device is included as part of another component, such as a computer, television, or radio.

The portable device may include components to assist in the consummation or processing of impulse transactions. For example, a credit card, a smart card or a bar code reader may be provided. A memory for storing identification of sources of finances, such as credit cards, debit cards, or bank accounts, may be provided, allowing for authorizations to pay from the identified account so that a transaction is completed without further entry by the user. For example, a restaurant bill is paid electronically using a secure transmission, avoiding credit card fraud through the handling of a card or paper receipt.

The portable device may include other multi-function features. The portable device may act as a universal remote or other remote controller for any or various electronic receivers. For example, the portable device controls a television set or radio receiver. As the channel is changed, the portable device displays products or services associated with the current content of the programming provided by the television or radio receivers. If the user is interested in a song being played, the user selects the song and depresses a purchase or request for information button on the portable device. The song is then ordered and shipped

to the user. Interactivity may also be provided with the portable device. Other functions that may be provided on the portable device include personal data assistance, cellular phones, radio frequency phones, pagers or other electronic device functionality.

5           The portable device may be used as an electronic wallet. Financial transfers are performed using secure communications. Products or services are purchased at the point of sale or in response to programming without the manual exchange of a credit card, avoiding fraud. If the electronic wallet is stolen, then all transactions using that electronic wallet are disabled. Using cellular radio  
10 frequency communications, the location of the electronic wallet may be obtained by triangulation.

Further aspects and advantages are discussed below in conjunction with the preferred embodiments.

#### BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

15           FIG. 1 is a block diagram of one embodiment of a network for providing impulse transactions.

FIG. 2 is a block diagram of one embodiment of a user device for use in the network of FIG. 1.

20           FIGS. 3-5 represent various possible embodiments of the user device of FIG. 2.

FIG. 6 is a flow chart diagram showing one example embodiment of an impulse transaction process using the network of FIG. 1.

FIG. 7 is a block diagram of one embodiment of a network.

FIG. 8 is a block diagram of one embodiment of a network.

25           FIG. 9 is a block diagram of one embodiment of a content control system.

FIGS. 10 and 11 are block diagrams of embodiments of a data base table structure used by the content control system of FIG. 9.

FIG. 12 is a block diagram of one embodiment of a user device.

FIG. 13 is a block diagram of one embodiment of a radio channel content implementation.

FIG. 14 is a block diagram of one embodiment of an audio-on-demand and trial mode content implementation.

FIG. 15 is a graphical representation of one embodiment of a user apparatus.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A personal multi-function electronic device and associated network for impulse transactions is provided. In one embodiment, the device is portable. Alternatively, the device may be part of another device. Product or service information is obtained and compiled from one or more various sources, such as television stations, radio stations, businesses with publicly accessible communications network (e.g. Internet) product or service offerings, catalogs, or other sources of products or services. Using two-way transmissions, the user device receives the compilation of product or service information and transmits impulse transaction data associated with a product or service from the compilation or entered manually regardless of the compilation. Alternatively or additionally, interactivity is provided, such as for answering questions posed in programming as part of television or radio content. The interactivity may provide for real-time communications.

A clearing house entity responsible for compiling the product and service information verifies the transaction, such as providing for payment of selected products or services, and distributes the transaction information to a source of the content, product or service. For example, a user watching a television commercial about an automobile inputs the channel information into the user device or the user device provides the channel information as a result of controlling the television. The user selects the automobile product as displayed in synchronization with the television broadcast. The user selects a request for more information option which is transmitted by the user device to the clearing house. The clearing house

forwards the request for information and the appropriate address, phone number or other contact information of the user to the manufacturer of the automobile. The manufacturer may then forward a brochure or other product information to the user. Thus, an impulse request for information transaction is satisfied.

## 5 I. NETWORK

FIG. 1 shows one embodiment of a network 20 for providing impulse transactions. The network 20 includes one or more sources of transaction information, such as product or service information. The sources are represented by the radio stations 22, television stations 24, advertisers 26, product or service  
10 vendors 28, and other sources 34. Other sources, include third party vendors, fulfillment houses, demographics customers, electronic data interchange (EDI) based customers or suppliers, XML based customers or suppliers, sources of programming content, external transaction processing center systems, financial institutions, Internet content providers, or other sources of information or  
15 processes associated with transactions.

These sources communicate with a data warehouse 30 (clearinghouse) over a network 38. The data warehouse 30 interacts with a distribution control 32 to provide transaction information to and receive transaction information from a radio frequency wireless transmission network 36. The wireless transmission  
20 network 36 communicates with a plurality of end user devices 40, such as transmission using code-division multiplexing, time-division multiplexing, group speciale mobile (GSM), data total access communications, flex, bluetooth, spread-spectrum and/or other transmission techniques.

In alternative embodiments, the radio frequency wireless transmission  
25 network 36 comprises other transmission means, such as direct connection, infrared connection, hardwire connection, hardware connection, or other communication networks. The network 38 comprises the Internet, a virtual private network (VPN) using secure socket layer (SSL software), the Intranet, direct communications, telephone system, or other system for providing information

from the sources to the data warehouse 30. Other networks including additional or fewer components may be used for the network 20.

The product and service information is provided by different types of media services. For example, the radio stations 22 comprise a radio broadcast media, and the television stations 24 comprise a television broadcast type of media. Other types of mass media include print media, such as company catalogs, newspapers, a list of companies such as provided by a phone book or Yellow Pages, brochures, coupons, or other printed information. Another type of mass media comprises publicly accessible communications network, such as the Internet. For example, an E-commerce Web Page host, such as Amazon.com, provides information for a plurality of products and services. Audio and/or video information may also be provided on the Internet. Other types of mass media sources include providers of data paging services, such as services that provide sports, weather and advertising information to data pagers. Likewise, other wireless communications providers, such as cell phone providers, may supply similar product and service information as another type of media. Other types of media supply may be provided, such as direct sources that provide product or service information for distribution of using infrastructures currently known or later developed. For example, the data warehouse 30 supplies product or service information for use just in the network 20.

The product or service information is provided either from the source of the product or service, such as direct vendor 28, from an advertising vendor 26 that places advertisements for other companies or from distributors of the media, such as the radio station 22 or the television station 24. In one example, brochure, coupon or catalog information is provided directly from a source of the product or service, such as direct vendor source 28. Other alternative sources may provide the information as represented by block 34.

Various product and service information is gathered from the sources. The information includes direct product or service information, such as a product or service identification, cost, description, and a relationship to any mass media



content. Other product or service information may be included. As an example, product and service information includes arrival and departure for flight services, weather information to assist travelers, lottery numbers for one or more states, special event and ticketing information, company help line phone numbers and contact information, banking information, bill payment information, electronic communications and interactivity information, and finance transfers, such as smart card transfers. Yet other types of product and service information include address and other contact information for the nearest stores, product or service reviews, or any other related information. For example, a selection of pizzas or a menu from a local restaurant is provided with associated cost information (e.g., a Dominos Pizza menu).

Depending on the source of the product or service information, additional information may be provided with the product and service information. For example, radio stations 22 or television stations 24 also provide a schedule or guide of programming and the content information for the programming. In one example, radio, television, or Internet media sources provide a program schedule and product and services associated with the scheduled programming are provided. An advertisement is typically run in a 10, 15 or 30-second slot on television. For some advertisements, the time varies as a function of the product or service, such as on a shopping channel or infomercial (e.g. multiple minutes of advertising a product or service). The television station 24 supplies a time for the advertisement and product or service information being advertised. In another example, the radio station 22 provides a schedule of programming where the programming includes content discussing a new book for a 15 minute time slot. Product information associated with the book is also supplied and indexed to the schedule. As yet another example, the radio station 22 may provide product and service information associated with each song played as part of the programming. Product or service information is provided for various types of content, such as audio, radio, or Internet broadcast to correspond with programming from the

source of the content. In other embodiments, the program content is also supplied by the source.

In one embodiment, radio, television, data paging, print, or other time based sources of programming or content provide program guide information with the product or services. Program guide information includes identification of the source of the programming content, an identification of the content including an identification of any advertising, and identifications of the products or services associated with the content as a function of time. For example, the television station 24 provides a 24-hour schedule of programming content, including advertisements and products and services associated with either a particular program or an advertisement. This program guide information is organized as a function of time of broadcast.

The data warehouse 30 compiles the product information from the various sources. The data warehouse 30 comprises a communications or telephone systems 42, a database system 44, application servers 46, an information scheduling system 48, a billing system 50, and transaction processing systems 52. The data warehouse 30 comprises a single or multiple physical facilities operated by a single entity. In one embodiment, the single entity controls these components, but all or a sub-set of components are operated by a third party (i.e. the single entity out-sources one or more functions of the data warehouse 30). In another embodiment, the single entity owns and operates all the components of the data warehouse 30.

The telephone systems 42 comprise modems, operators, routers, servers or other devices for receiving information from the various media or product and service sources. The product or service and associated information, such as programming guide information, is provided to the data warehouse 30 over the network 38. In another embodiment, product and service information is provided electronically to the data warehouse 30. For example, the information is compiled and provided directly to the data warehouse or provided via a public source, such as a download from Internet Web Page content. The data warehouse 30 retrieves

the public product or service information. In an alternative embodiment, the data warehouse 30 provides web content and associated software for allowing a source to enter the information. In other embodiments, the sources e-mail or download using file transfer protocol or other electronic transfer the product or service information to the data warehouse 30. Electronic transfers allow for automatic processing by the data warehouse 30.

In addition to providing information ahead of schedule, the sources provide the product or service information or other information in real time. For example, the data warehouse 30 supplies software to a source so that the source may provide question information, order status information or other real-time information to the data warehouse 30. In one embodiment, the software is also operable to act as a receptor for information provided from the data warehouse 30.

The data warehouse 30 obtains information from a plurality of sources of the same and/or different types of media, such as multiple radio stations 22, multiple television stations 24, multiple advertising vendors 26, multiple direct vendors 28 and/or a plurality of other vendors 34. The various sources include local as well as distant sources of product and service information. For example, program guide and product and service information for a plurality of radio stations or television stations within the Chicagoland market is obtained as well as radio station and television station programming guide and product and service information from other markets outside of the Chicagoland area. As discussed above, product and service information from different types of media is also compiled, such as program guide, product and service information from both radio and television sources 22 and 24.

The information obtained is compiled by the data warehouse 30. The data is received by the telephone systems 42 and provided to the database system 44. The database system 44 comprises data storage devices such as RAM, hard drive, diskette or tape memory for storing data. In one embodiment, the database system 44 comprises data file servers running the Network File System (NFS) manufactured by Sun Microsystems, Inc., located in Mountain View, California.

Other database systems 44 may be used, such as structure query language (SQL) database systems. The application servers 46 control compilation and storage of the compiled data. The application servers 46 comprise a relational database management system, such as SQL (e.g. Oracle, Sybase, Microsoft SQL server or others) or an enterprise SQL server.

The information scheduling system 48 comprises one or more processors or servers for scheduling exportation of the compilation to various end user devices 40. The scheduling system 48 also schedules other network 20 bandwidth sensitive information, such as receiving transaction information from the various end-user devices 40. Time sensitive program, product or service information is scheduled with a higher priority. For example, interactive information such as questions, answers or bidding information is scheduled with the highest priority. Other high priority information includes transaction requests for time-sensitive products or services, such as ordering a pizza and status information or responses to the transactions. Other high priority information includes requests for help. For example, a request for help from an end-user device 40 is received by the data warehouse 30. The response is assigned a high priority. Alternatively, a request for help is forwarded to an operator and the operator calls either the end-user device 40 or a phone number associated with the user of the end-user device 40.

The scheduling system 48 determines the available bandwidth. The compilation, transaction information, and status information are used to fill the available bandwidth. Any unused or extra bandwidth is used to repeat or redistribute information with a high priority. This redistribution or repetition makes it more likely that the high priority data is received by the end-user device 40. Any errors in reception of high priority data due to interference are overcome through repetitive distribution.

The scheduling system 48 or the application servers 46 compress and encrypt the data for distribution or storage. Any of various compression or encryption programs may be used, such as RSA, PKI (public keys), Tripple DES

or other encryption programs or PCM, RLE, MPEG, PKZIP or other compression programs. In alternative embodiments, encryption and/or compression is not used.

Once the data is available for distribution to the user devices 40, the scheduling system 48 through the application servers 46 and the data base system 44 provides the data to the RF wireless transmission devices 36. The data may be separated by region where each region has a set of data particular to that region. The region comprises geographical regions selected arbitrarily, as a function of the extent or reach of a source of content (e.g. a cable service distribution area) or other variable. The regions may be small as a function of overlapping and non-overlapping extents for various sources of content.

The information is provided in real-time or at least at 30-second, 15-second or less intervals in one embodiment. Real-time or frequent distribution allows for continuous updating of product, service and associated programming information. Real-time or frequent update intervals also provide for less memory requirements for the end-user devices 40. In an alternative or additional embodiment, product and service information and associated programming information is provided prior to a broadcast of any programming, such as 24 hours in advance, a week in advance, or other time period in advance. For example, real-time or substantially real-time transmissions are provided for dynamic information such as interactive questions, answers, bidding, or other time-sensitive information and prior distribution is provided for product or service information that tends to be static, such as non-interactive radio or television programming, or print media information.

The RF wireless transmission system 36 comprises a data paging, telephone or other cellular two-way radio frequency wireless infrastructure. The RF wireless transmission system 36 comprises a series of base stations distributed geographically in cells. In one embodiment, the infrastructure covers at least the heavily populated areas of a region and preferably covers an entire region.

In an alternative embodiment, the RF wireless system comprises a satellite communication system. Other transmission systems may be used for

communication with the user devices 40, including direct connection through the Internet, one-way communication systems either to or from the user device 40, hardwire direct connections, or wireless infrared connections. In one embodiment, the RF wireless transmission system 36 is independent of the sources of the product or service information. In one alternative embodiment, the compilation is provided as part of the programming, such as being redistributed to the television or radio station and transmitted encoded within the programming transmission.

The RF wireless transmission system 36 distributes the compilation and schedule information in a single data stream to each user device 40. The data stream comprises one or more packets of information provided over time from the wireless system 36 directly to the user device 40. Further, the information is distributed to a plurality of users devices 40. The base stations of the RF wireless transmission system 36 distribute a single data stream to each individual user device 40. The distributed compilation includes transaction information, such as identification or other information needed for processing later received transactions.

The end-users devices 40 preferably comprise two-way wireless devices, such as portable devices. The end user devices 40 receive the compilation and make the information available to a potential purchaser or user. The user is able to select product or service information for initiating a transaction.

One or more of the end-user devices 40 generates additional transaction information. Transaction information includes purchase orders, requests for further information, requests for help, requests for status of a previous transaction, billing or financial authorization information, identification of a source of finances, product or service identification, identification of a product or service source, identification of a source of associated programming or content, identification of a source of a question or answer or other interactive information, a purchase amount, a selection of shipping options or availability information, or a review of product or service information. For example, a user device 40 receives programming guide information and an associated product identification for an

advertised knife set. The manufacturer of the knife set is identified in the information distributed to the user device 40 as well as various options associated with shipping the knife set. The user selects a purchase option. User selection of the purchase option generates a purchase order request that includes an  
5 identification of authorization to debit or withdraw from a credit account or authorization to access funds from a bank account or to authorize later billing, identification of the source of finances, identification of the selected knife set, identification of the amount of the purchase, identification of the selected shipment options, and identification of a source of the product.

10 As another example, the user sees a print ad discussing an automobile. The user selects the automobile on the user device 40 and generates a transaction as a request for additional information. Selection is performed in response to user entry of a code shown in the ad or user selection of a product or service searched for and obtained from the user device 40. The transaction includes an  
15 identification of the product, identification of the source of the product and an identification of user related information, such as a phone number or address.

The user device 40 transmits the transaction information to the RF wireless transmission system 36. The RF wireless transmission system 36 routes the information to the data warehouse 30. The telephone systems 42 of the data  
20 warehouse 30 routes the transaction request to the transaction processing systems 52.

The transaction processing systems 52 comprise servers or other processors for interacting with the data base systems 44 and the billing systems 50. Transaction processing systems 52 identify the type of transaction, such as a  
25 purchase order, a request for information, a request for help, a request for status or interactive information. For interactive formation, the transaction processing system 52 routes the transaction information to a source of a question or other interactivity, such as a radio station 22. Alternatively, interactive transaction information is routed to an application server 46 or direct vendor 28 hosting an  
30 auction or bidding.

For a request for information transaction about a product or service, the transaction processing system 52 routes the transaction information to a source of the product or service. In one embodiment, the transaction processing system 52 obtains further product or service information and provides that information to the scheduling system 48 for eventual transmission to the end-user device 40.

Alternatively or additionally, the transaction processing system 52 provides end-user contact information to a source of the product or service so that the source of the product or service may contact the end user.

For a request for status information, the transaction processing system 52 communicates with the associated source of the product, service or interactivity, such as a direct vendor of products and services 28, to obtain shipping or other status information associated with a previous transaction. Each transaction is identified with a unique code while not completed.

For a purchase order, the transaction processing system 52 interacts with the billing information system 50 and a source of the product or service. In one embodiment, the billing system 50 is used to authorize purchases and arranges for the distribution of finances to a provider of the product or service. The billing system 50 then bills an owner or user of the user device 40 (e.g., as part of a monthly statement). Alternatively, real-time billing is provided and a summary or invoice is displayed on a web site or on the user device 40. In yet another alternative embodiment, an authorization for a transfer of funds from a credit card, a smart card, a bank account or other source of finances, including an identification of a source of finances, is provided with the transaction information. The billing system 50 provides the financial information to a source of product or services so that the source of the product or service may obtain payment for the product or service. The source of the product or service then provides the product or service to the user of the user device 40.

For a request for help transaction, the transaction processing system 52 routes the transaction to a source of help, such as an operator associated with the data warehouse 30, an application server 46 available to provide responses to



frequently asked questions, or one of the sources of programming, product or service information.

The transaction processing system 52 may also provide real-time or non-real-time feedback associated with transactions. In one embodiment, the transaction processing system 52 provides a message back to the end user 40 indicating reception and processing of the transaction request.

In another or the same embodiment, the transaction processing system 52 compiles statistics associated with various sources of programming, associated with various advertisements, or associated with various products or services. The statistics are then provided to an appropriate source. For example, statistics associated with the sales of songs or albums played on the radio station 22 are provided to the radio station 22, indicating the popularity of the programming content. As another example, the number of coupons used for a product or service is provided to a source of the product or service or to a source of advertising 26 to indicate the distribution and/or popularity of the coupon. Additional statistics include demographic information associated with the users of the user devices 40 that placed orders. Demographics information is automatically provided to a source of the product or service or source of programming.

Using the network 20, impulse transactions are provided. As the user watches a program, such as a television or radio program, or reads print material, such as a newspaper or catalog, the user selects the product or service on the user device 40 and depresses a button to consummate the transaction. As another example, the user knows of a product and decides to purchase that product. The user searches for and obtains the product information on the user device 40 and selects a purchase transaction.

Another example provides for a merchant or retail transaction. A grocery store, department store, restaurant or other retail provider of services and/or products is assigned a merchant number, such as a tax identification number. The merchant number and a transaction amount (e.g. product or service amount due and any tip amount) are input into the user device 40. The wireless processes

using the network 20 is used to process the transaction without a cashier and without giving credit card or any other information. A receipt is generated and provided to the merchant, such as at a retail transaction printer connectable with the end-user device or the data warehouse 30.

5           In yet another example demonstrating the convenience of the network 20, the user finds a product on another device, such as the computer. The web content associated with the selected product is then downloaded to the user device 40 from the computer. The user device 40 is then used to select a transaction, such as a purchase. The purchase order is communicated through the network 20 without  
10           providing financial information through the computer. Since the network 20 preferably operates using encrypted and compressed data, the purchase transaction is provided in a secure environment. One such embodiment is discussed below.

## II. USER DEVICE

FIG. 2 shows one embodiment of the user device 40. The user device  
15           comprises a wireless radio frequency transceiver 60, a wireless infrared transceiver 62, a transceiver for wired connections 64, a memory 66, a processor 68, a component memory 69, a semi-permanent memory 70, an external bus interface 72, a user input module 74, a bar code reader 76, a credit card reader 78, a smart card reader 80, a touch screen 82, a display 84, a printer interface 86, and a power  
20           module 88. Additional components may also be provided. Fewer components may be used in the user device 40. For example, the user device 40 comprises the processor 68, the memory 66, the wireless transceiver 60, the user input 74, a display 84, and the power module 88.

          In one embodiment, the user device 40 is portable. Alternatively, the user  
25           device 40 is non-portable, such as being included as a module in a television receiver, a radio receiver, or other electronic device.

          In one embodiment, the user device 40 comprises at least one of the components for communicating with other devices electronically. For example, the wireless radio frequency transceiver 60 (e.g. wide or local are wireless), the

wireless infrared transceiver 62, the transceiver for wired connections 64, and/or the external bus interface 72 is provided. The transceiver for wired connections 64 comprises a USB, PS2, serial, parallel, an IEEE1394, an optical or other electrical interface. The external bus interface 72 comprises a compact flash, PCMCIA,  
5 PC104, ISA, PCI, Host Bus, a proprietary interface or other interface.

The wireless radio frequency transceiver 60 comprises a transmitter and a receiver. Either or both of the transmitter and receiver comprise analog or digital transmission devices. The wireless infrared transceiver 62 comprises a transmitter and receiver for communicating with a computer. Alternatively or additionally,  
10 the wireless infrared transceiver 62 comprises a transmitter for controlling another electronic device, such as a television, radio or both. In one embodiment, a receiver is provided for receiving channel information from the electronic device. Based on feedback from the receiver or based on the time, product or service information associated with a selected channel is selected by the processor 68 for  
15 display on the user device 40. In alternative embodiments, the display 84 on the user device 40 of product or service information is independent of the control of another electronic device. The transceiver for wired connection 64 may comprise a modem, a cable system, or a digital subscriber line connector.

One or more of the communication components are used to communicate  
20 with the data warehouse 30 (FIG. 1). Product or service information, programming guide information, interactive information, or other information is transmitted to or received from the user device 40. For example, a product or service identification, associated programming guide or catalog list and a cost or amount is received by the user device 40. The processor 68 processes a purchase  
25 order transaction and transmits the product or service identification, the amount of the purchase and an identification of a source of finances for the purchase.

Communication components, such as the wireless infrared transceiver 62, also communicate with other user devices 40. For example, one user device 40 is used to authorize a transfer of funds from a smart card or other source of finances  
30 to another user device 40. In one embodiment, the funds are transferred without

communication to any other devices. Alternatively, authorization for the transfer of funds is communicated to the data warehouse 30 or another entity.

Communications components are also used to communicate with other devices, such as point of sale systems. For example, a user purchases a product at a store or a meal at a restaurant. The user uses the user device 40 to pay. The user device 40 receives information including an amount of the purchase and transmits an authorization for transfer of funds or transmits an identification of a source of finances to consummate the transaction to the point of sale system. Alternatively, the transaction information is transmitted to the data warehouse 30; the data warehouse 30 completes the financial transaction with a credit card company or the source of the product or service; and communicates a completion or receipt transaction to the user device 40 and/or the point of sale system. A virtual receipt may be provided to or from the wireless device 40 indicating completion of the transaction. Credit card or financial fraud and theft are avoided by consummating transactions without the exchange of financial information with a third party, such as a retailer or waiter. The data warehouse 30 arranges for payment to the retailer or service provider.

The communications component in combination with the processor 68 and optionally other components may provide for a multi-functional device. For example, the user device 40 also comprises a pager operable to receive data paging or other paging information with the wireless radio frequency transceiver 60. As another example, the user device 40 also comprises a cellular phone. FIGS. 3 and 4 represent portable devices that may include cellular phone capabilities. FIG. 3 shows such a device with a flip-down microphone. By using the product and service compilation download discussed above for FIG. 1, the user device 40 may operate free of the Internet. In alternative embodiments, Internet content or web pages are downloaded to the user device 40.

As yet another example, the processor 68 with the wireless infrared transceiver 62 also operates as a remote controller. A multifunction user device 40 that may include the remote control capabilities is shown in FIG. 4. The remote

controller comprises a television, radio, universal or other appliance remote controller.

As yet another example, the user device 40 also comprises a personal data assistant, electronic "checkbook" organizer and/or other personal data device. For example, in addition to the transaction processing discussed above with respect to FIG. 1, the user device 40 also stores contact information, schedule information or other data associated with the user. Once such embodiment is shown in FIG. 5. Other functions may be provided by the user device 40. The user device 40 may comprise only a single function or any combination of the multi-functions discussed above. A sub-set of functions included on the user device 40 may be made available different users.

Information obtained from the communications component, such as product or service information, is stored in the memory 66. The memory 66 comprises a RAM, RDRAM, DRAM, compact flash, smart media, hard disk, removable disc, optical storage, rambus, tape, disk, hard drive memory or other memory.

Product and service information, transaction information, or other information received by the user device 40 is stored in the memory 66 under control of the processor 68. The memory 66 stores program guide information, product or service information and transaction information. The memory 66 also stores user information, such as personal data assistant type information, and user configuration data for the user device 40. For example, the memory 66 stores an order for displaying information to a user, software programs, applications and/or other modifiable control routines.

The display 84 comprises an LCD, flat panel, monitor, or other display device for providing information to the user. For example, the display displays programming guide information. The programming guide information is synchronized with broadcast of the programming. The current programming guide information and any associated product or service is displayed. In alternative embodiments, a guide describing the current and subsequent programs

and associated product or services is displayed. The guide and product or service information is also displayed as a function of the source of the content. For example, product and service information is displayed as a function of a selected broadcasting channel or frequency. Displays of previous content schedules and or product or service information may also be provided. Likewise, product or service information associated with yet to be broadcast content may also be displayed. An alphabetical listing of vendors, products, services and/or guide information may also be provided. Other arrangements of product, service and other information may be provided for user selection.

The display of product or service information may include cost information, identification of the product or service, a source of the product or service and a cross-reference to any associated programming guide information, such as a channel and time of a scheduled broadcast associated with the product or service. In alternative embodiments, additional or fewer sources of information about a product or service is displayed or the information is sequentially displayed. For example, an estimated ship date or product reviews may be provided. For catalog information, a cross reference to related programming may or may not be provided. The display 84 is also operable to display configuration selection information of the user device 40 and/or information associated with other functions of the multi-function user device 40.

The display 84 also displays interactive information. For example a question is displayed and as the user enters the response. The response is also displayed on the display. Status information may also be displayed. For example, the user requests status information on a previous transaction. A ship date or tracking code is displayed on the display for the user.

The memory 70 comprises an EEPROM, ROM, a flash memory, or other non-volatile memory. The non-volatile memory 70 stores operating system , BIOS, set-up, update, communications and control software, applications, user configuration, security setting, financial, network setting and/or diagnostic information.

In one embodiment, the non-volatile memory 70 stores financial information for use in multiple transactions over time. For example, the non-volatile memory 70 stores one or more sources of finances for each user of the user device 40. In a virtual wallet embodiment, a plurality of sources of financial information are stored. Sources of finances include credit cards, smart cards, bank accounts, such as savings or checking accounts, debit accounts, or other sources of money, liquid resources or equity. Associated personal identification numbers (PIN) or other authorization information may also be stored in the semi-permanent memory 70. When a purchase is made using the user device 40, a source of finances is selected by the user or configured to be used automatically. The processor 68 obtains an identification and associated authorization information. The processor 68 includes the financial information with the transaction data.

The processor 68 comprises a general computer processor, an application specific integrated circuit (ASIC), a microcontroller or other digital signal processing device. In one embodiment, the processor 68 includes the secure component memory 69 for storing source of financial information, authorization information and/or encryption keys. The component memory 69, memory 66 and memory 70 may comprises a single memory. Each of the memories 69, 66 and 70 may store information described herein as being stored in another memory.

The processor 68 coordinates and controls the various functions of the user device discussed herein. For example, the processor 68 configures the user device using configuration software. The user enters a zip code, and the processor 68 configures the system to display information for broadcast sources associated with that zip code. Other configuration techniques may be used, such as using a setup program that obtains set-up data from the network 20 (e.g. time and date information is obtained). The processor 68 also controls user selectable configuration functions.

The processor 68 reformats transaction information from the data warehouse 30. For example, the processor 68 decompresses and unencrypts

information. Likewise the processor 68 compresses and encrypts information for security purposes ready to be provided to the data warehouse 30.

In one embodiment, the software used by the processor 68 is configurable by a transmission from the data warehouse 30. Likewise, the processor 68 updates  
5 and otherwise organizes the product and service information in associated programming guide information in the memory 66. The processor 68 also coordinates the dump or display of any repetitive information.

The configuration, communications and transactions are performed by the user device 40 in response to a manual user input 74. The manual user input 74  
10 comprises one or more of a keypad, dedicated command buttons, programmable (e.g. macro) buttons, software interaction with a generic button and the display, single buttons for multiple purposes or types of selections, a microphone and associated processor and software for voice input, and/or biometric devices. A touch screen 82 may also be provided for manual user input.

15 Biometric devices comprise retinal, finger print or other scanners for confirming an identity of a user. For example, biometrics are used to enable operation of the user device 40 or to authorize a transaction with the user device 40. Other biometric devices may be used.

FIG. 5 shows one embodiment of various user input devices. For example,  
20 a touch screen 90 is provided. A series of buttons 92 are provided that comprise either dedicated special function buttons, programmable macro buttons, or buttons associated with a function displayed on the display 90. The user device 40 also includes menu navigation and selection buttons in the form of cursor arrows and an "enter" button 94. An alphanumeric keyboard 98 is also provided with a  
25 numeric keypad 96. Additional or fewer manual user input devices may be used. Manual user input devices 74 may also perform multiple functions, such as both a display function as well as a touch screen function, or a microphone used for cellular telephone communications as well as voice recognition for control of the user device 40.



The manual user input devices 74 provide for various functions. For example, separate special command buttons are provided for each of the help function, a purchase order function, and information request function. If the user has difficulty with the user device, the user depresses the help button. The help transaction request is provided to the data warehouse 30 and a response in a form of a phone call to the user device 40 or another phone is provided. Different responses, such as help functions displayed on the display 84 or information from other sources, may be provided. If the user desires to purchase a product or service currently selected, a purchase button is depressed. As a result, a transaction is processed including automatic authorization for a transfer of funds. Likewise, if the user desires more information about a selected product or service, the user depresses the information request button. The transaction information is then automatically transmitted to the data warehouse 30. In alternative embodiments, these transaction buttons are selectable from a menu using generic or standard selection features.

The manual user input devices 74 also allow for selection of configuration information, the type of media being currently displayed, selection of a user where multiple users use the device, selection of a source of finances or other selections associated with options provided by the user device 40 and the network 20.

Product and service information for selection is organized as a function of one or more of various factors. These factors include alphabetically, by type of media, by source of product, by broadcast channel, by region, by product code, by a favorites list or by other user design arrangements. The user then scans the information by scrolling through the information, selecting products and services according to a hierarchy menu structure, or by entering a product or service code or name. Other techniques for isolating a product or service may be provided.

In one embodiment, product and/or service information associated with a broadcast outside of the region where the user device 40 is currently located is provided on the user device 40. The user device 40 may receive, through the RF wireless transmission 36 or other mechanism, a sample of programming or the

complete content being broadcast associated with any programming for that out-of-market source. Alternatively, no sampling or additional programming is provided. The user is able to make purchases for products or services or receive content associated with out-of-region broadcasting.

5           The manual user input devices 74 also allows for locking or security of the user device. For example, a personal identification number (PIN) or other lock features are provided for activation of the user device 40 or for availability of certain types of products and information on the user device 40, such as R-rated or X-rated movies (e.g., parental locks). Manual user input devices 74 may also be  
10       used for inputting a source of financial information, such as credit card numbers, bank account numbers or other financial information. Other personal information may be entered, such as identification information, medical records and/or insurance information.

15           In one embodiment, the user device 40 locks out any use in response to a signal from the data warehouse 30. For example, any use of the user device 40 is prevented where the device is reported as stolen. This may increase the chances that the device is returned and prevents loss of finances from theft. The user device 40 may transmit signals in response to a lock out command allowing for triangulation to locate the user device 40.

20           The user device 40 optionally includes one or more reader devices. For example, a bar code reader 76, a credit card reader 78, and/or a smart card reader are provided. Other readers may be used. A reader obtains information from sources local to the user device, such as credit cards, smart cards, coupons or other bar coded information. For example, any of the user devices 40 shown in FIGS. 3,  
25       4, or 5 can include one or more readers. The credit card and smart card readers 78 and 80 are used to obtain transaction information for providing a source of finances. Smart cards may act as a repository of funds for transfer and allow importation and exportation (transfer) of the funds. The smart card may also store other personal information, such as identification, medical record, rewards

acquired as a function of using the user device 40, purchase history, passwords, personal user, insurance and/or other information.

Using the credit card reader, purchase transactions are authorized without storing an identification of a source of financial information and without requiring manual entry. For example, the user merely slides a credit card through the credit card reader to store the source of finances, identification or to authorize a purchase transaction.

The bar code reader 76 allows for automatic adjustment of the amount of cost of a product or service by scanning a bar code associated with a coupon. The bar coded coupon information is then provided as transaction information to the data warehouse 30 with additional transaction information for the purchase of a product. Promotional materials may also be bar coded so that an information request transaction is processed merely by scanning a bar code. Additionally or alternatively, the bar code provides reference information for a purchase or information request associated with a product. The user device 40 receives the product information in the form of a bar code identification (e.g. universal product code, ISBN book codes, data warehouse assigned codes, source assigned codes or other codes) from print media or manual user entry of an identification code. The user then requests information or indicates a purchase of that product. The purchase is arranged through the secure radio frequency wireless transmission.

The bar code reader 76 or manual user entry allows for generation of a shopping list. The product code information is entered, such as by scanning a UPC code of a soup can. For example, as a user consumes grocery items, the product code is scanned. The scanned or entered information is available for later use, such as printing or displaying a grocery list, communicating the list to a shopping service or transmitting the list to a source of products with a transaction request.

In one embodiment, the user device 40 is operated by multiple users. Individual user configuration information may be saved within the user device 40 for each user. The sources of finances specific to each user are saved independent

of other user sources so that a user has access only to their own sources of finances. For example, a PIN or biometric authorization is used for access. Information associated with favorite types of products or services may also be stored and saved as a function of the user. For example, the product or service list highlighted or provided to the user is altered as a function of the user or the user's transaction history.

For additional functionality, the external bus interface 72 is provided. The external bus interface 72 comprises a compact flash, a PCMCIA connector or other device for adding additional functionality to interact with the user device 40 and the processor 68. For example, the user device 40 may comprise only a subset of the various functions discussed above. Additional functionality is then incorporated into the user device by connection to another device.

The user device 40 interacts with an electronic programming receiver in one embodiment. The programming receiver is a separate component or a different component than the user device 40. The electronic programming receiver comprises a receiver for receiving radio, television, or computer network information. In one embodiment, the user device 40 remotely controls the programming receiver. The programming receiver receives radio broadcast, television broadcast, or network communications. The display of product or service information on the user device 40 is synchronized with the reception of programming content on the separate receiver through real time transmission of product or service information to the use device 40 or through scheduled display. By controlling the separate programming receiver, the user device 40 obtains information indicating the source of programming and the associated product or service information. Alternatively, the user inputs the source of programming being received on the separate programming receiver into the user device 40. In other embodiments, the user device 40 interacts with the global positioning system or phone systems.

In alternative devices, the user device 40 is incorporated into the programming receiver. For example, the user device 40 is provided as a module in

a CD player, a DVD player, a television, a radio, an audio expansion module (e.g. MP3) or other programming receiver device. In any one of these alternative embodiments, the user device 40 provides out of area or region programming or sampling through the RF wireless transmissions.

### III. EXAMPLE EMBODIMENTS

The capabilities of the network 20 and the user device 40 of Figures 1 and 2 are capable of use in and design for different embodiments. A few such example embodiments are disclosed below.

FIG. 6 is a flowchart of one embodiment using the network 20 of FIG. 1 for product or service or interactive transactions associated with a radio broadcast. In act 100, a radio station sends scheduling information, or a programming guide of content to be broadcast, to a clearing house comprising the data warehouse 30. The data warehouse 30 places the information into the data base in act 102. The scheduling system 48 applies the scheduling algorithms to the data to assign a priority for distributing the data to the user devices in act 104. In act 106, the application server 46 packages the data with appropriate header and body information for data processing and error correction. The compiled data is packaged with other compiled data. In act 108, the scheduling system 48 applies the bandwidth algorithms to add data or limit data to be within an appropriate bandwidth. The application servers 46 compress the data in act 110 and encrypts the data in act 112. In act 114, the compressed and encrypted data is sent by the application servers 46 through the telephone systems 42 to the RF wireless transmission systems 36. The RF wireless transmission systems 36 or another terrestrial or wireless system transmit the data stream to the appropriate user devices 40 in act 116.

In act 118, the compressed and encrypted packetized data is received by a plurality of user devices 40. The user devices 40 decrypt, decompress and decode the incoming data stream in act 120. The user devices 40 process the data for storage in the memory 66, and displays the appropriate data in act 122. For

example, the display of products or services provided in the radio play list (program guide) information is displayed in synchronization with the broadcast by the radio station 22 as a function of time and the selected radio channel. In act 124, the user selects a transaction option associated with the displayed product or service information, allowing an impulse purchase. For example, the user selects the purchase of a compact disc that includes a song being currently played, or the user selects the purchase of a window cleaning service displayed in synchronization with a window cleaning service advertisement. In act 126, the user device 40 prepares or processes the transaction. For example, the user device 40 compiles the data into a purchase order format including appropriate header information and product identification information. In act 128, additional information is requested by the user device 40 of the user or of the data warehouse 30 if needed. In act 130, financial information is requested by the user device 40. For example, a listing of various sources of financial information is provided to the user or the user is asked to swipe a credit card or have other information read by a reader as represented by act 132. In act 134, the processor 68 of the user device 40 formats the transaction data. The formatted data is compressed in act 136, encrypted in act 138 and transmitted to the data warehouse 30 in act 140. In one embodiment, the transmission is accomplished using the RF wireless transmission system 36. Other transmission structures may be used.

In act 142, the data warehouse 30 receives the transaction communication from the RF wireless transmission system 36. The transaction data is routed to the transaction processing system 52 in act 144. The transaction processing system 52 or application servers 58 decrypt, decompress, parse and further process the transaction data in act 146. In act 148, the transaction is processed through an application server 46 for appropriate transaction processing, such as updating billing records, updating or generating status information, generating or updating a demographics report, quality assurance checks, fraud detection, rewards or loyalty program updating, discount determination and record keeping, user confirmation, and/or other processes to provide secure services to the user and the sources. In

act 150, the transaction processing system 42 routes the purchase order or other transaction information with the product identification or other information to the appropriate source, such as a source of the product or service. In other embodiments, interactive transactions are provided to the radio station 22. In act 5 152, the billing information systems 50 process the finances associated with the transaction. For example, the billing information systems 50 record the transaction amount and identification information for later billing. As another example, the billing information systems 50 complete an authorization check with a credit card company or bank and arranges for the transfer of funds to the source 10 of the product or service. In act 154, the order status and financial status information is provided to the scheduling system 48 for sending to the appropriate user device 40.

Additional acts may be provided, such as transmitting demographic and other statistics to the radio station 22 associated with purchases of products or 15 services discussed in programming content or advertising. Another example includes receiving further question or response information from the radio station 22 or another source for transmission back to the user device 40. Some of the steps discussed above may be skipped in some of the embodiments.

From the user's perspective, the user tunes the radio to a desired radio 20 station 22 with the user device 40 or another means. The radio receiver receives programming content, such as "With or Without You" by U2. As the song is played by the radio receiver, the user device 40 displays the song title, the group title, the CD or album title, product options, such as compact disc or audio tape, and a cost associated with each product option. Alternatively, a subset of this 25 information or additional information is displayed, and the user may then be able to select various options to obtain the remaining information. The user hearing and enjoying the song impulsively decides to make the purchase. The user selects the particular product desired for purchase and selects the purchase transaction. Using either stored financial information or requiring entry through the manual

user input device 70 or reader 76 or 78 of additional financial information, the impulse purchase is completed.

In another embodiment, interactive radio is provided. For example, as a song is being played by the radio receiver or the user device 40, the user device 40 displays the question "Do you like this song?". The user responds by indicating "yes" or "no" or providing further information. This interactive transaction information is then provided through the data warehouse 30 to the radio station 22. Demographic information may also be provided. The radio station 22 may provide a further response. The further response is then routed to the particular user device 40 that provided the response. In an alternative embodiment, a radio show host or other content of the programming provided through the radio receiver includes a question such as "Should we keep playing this song?". The user indicates a response on the user device 40. The responsive transaction information is provided to the radio station 22 through the data warehouse 30. Based on statistical information, the radio station 22 may decide to continue to include that song in future programming or reduce the amount of play time of that song. Such interactive and impulse transaction systems associated with radio are disclosed in U.S. Provisional Patent Application Serial No. 60/121881, filed February 25, 1999.

In another example, the radio program guide information is provided to the data warehouse 30. The user selects a purchase or request for information transaction with the user device 40 upon hearing a song. The song is or is not displayed on the user device 40. The user device 40 provides a selection of the radio frequency or station associated with a mass media radio broadcast. The user device 40 transmits the transaction request with time information and selected channel or source information to the data warehouse 30. The time information comprises a time at which the transaction request was input to the user device 40. Based on the source and time information, the data warehouse 30 determines a product or service for the transaction request from the program guide information.



The data warehouse 30 transmits the transaction request to the source of the product or service.

In one embodiment, the radio or other receiver communicates with the user device 40, such as using a wireless infrared connection or a radio frequency signal. The receiver communicates channel or frequency information and/or time and date information. The user device 40 may provide the listening, viewing, or other information as demographics data. Other communications may be provided, such as where a transaction selection is provided on the receiver. For example, a user depresses a "buy" or "information request" button on the receiver, such as a car radio. The receiver communicates the transaction information to the user device 40, such as date, time and channel or frequency or product or service identification. The user device 40 securely transmits the transaction request to the data warehouse 30 for processing or stores the information for later selection or confirmation by the user.

In alternative or additional embodiments, the user device 40 identifies the frequency or channel of the receiver and correlates the frequency or channel information with a product or service. Identification is provided through communication with the receiver or by sensing electronic or other emissions from the receiver. The identification information is used for transactions with the user device 40, such as displaying a currently played song title and associated product information on the user device 40 and selecting a transaction in response to the display.

In yet another example embodiment, the user device 40 obtains information for later use. The information is stored in the memory 66. An impulse to later purchase, later request information or provide a later reminder or selection is satisfied by depressing a button or combination of buttons. The information is "bookmarked" for later consideration or use. The stored information comprises product or service information or frequency/channel and time information. For example, a user operating a vehicle selects radio song identification information for later consideration without jeopardizing a focus on driving. The selection is

made on the receiver with subsequent communication of the selection to the user device 40, made in response to a remote signal (e.g. from an key-chain button) or made on the user device 40. Later, the user performs any of the transactions described herein, such as purchasing or requesting further information. The user  
5 may have stored multiple products and services and selects one for purchase.

In one example use, the user device 40 connects with a computer and provides a URL or other network content identifier. The user obtains additional product or service information from the content and/or may complete a purchase or other transaction based on the content and the stored information.

10 While the examples discussed above were given for radio media, television media, data paging media, print media, or any other media may use similar processes and transactions. Likewise, song playing services on the Internet may use the network 20 for similar transactions.

In another embodiment for using the network 20, secure publicly accessible  
15 communications network (e.g. Internet) purchases are provided. The user downloads web content from the publicly accessible communications network to a computer. After selecting a product or service, such as a book, the user selects an order screen from the web content. Software such as OCX, Java, DLL or other software, is loaded into the web content to interact with the user device 40. The  
20 software includes transaction information, such as product or service identification and source information.

The product or service information is provided to the user device 40 on a first path. For example, the Internet is connected to the computer through the telephone lines and the computer is connected to the user device 40 through an  
25 infrared wireless transmission or through a wired connection. In one embodiment, the user device 40 is installed as a board within a computer. Alternatively, the user device 40 comprises a separate, preferably portable, device.

In one embodiment, the communication with the user device 40 is initiated through activation by the user device 40, such as selection of a download option.

30 The user device 40 communicates with the computer to obtain the transaction

information, such as product or service identification and associated information. In alternative embodiments, the computer initiates the communication in response to a user entry to indicate a secured purchase or information request transaction. The software content then transmits the transaction information to the user device  
5 40. In either case, the user device 40 processes the transaction as discussed above and communicates the transaction information on a second communications path.

In one embodiment, virtual wallet software or other software for storing financial information on the computer provides financial transaction information with the product and service information from the content to the user device 40.  
10 Alternatively, the user manually enters the financial transaction information or the financial information is stored on the user device 40 as discussed above.

The second communications path is free of the computer. In particular, the second communications path is free of the publicly accessible communications network (e.g. Internet) connection with the computer. The second path may  
15 include other publicly accessible communications network communications, such as the network 38. In one embodiment, the second path comprises the radio frequency wireless transmission path to the RF wireless transmission system 36. The transaction data is routed to the data warehouse 30. The data warehouse 30 processes and routes the transaction information to a source of the product or  
20 service, such as a company hosting the associated web content. Since the user device 40 reformats the transaction data through compression and encryption, the second communications path is more secure than the first communications path.

By clearing the transaction and financial information on a separate communications path, financial information piracy is more likely avoided.  
25 Transmission of personnel information on the public network is avoided. The transaction is also made simple by avoiding entry of personal information for each transaction. The source of the product or services, such as the host of the web page content, receives the order and financial information. The order and financial information may be provided electronically to speed processing.

In an alternative embodiment, the user device 40 is included as part of the computer. A transmitter is provided for the second communications path that is free of the connection between the computer and the publicly accessible network. Software on the computer performs the transaction processing. Product and service information is obtained from content from the publicly accessible computer network, manual user entry, a memory storing product or service information or other source.

In another embodiment, the network 20 is used for impulse transactions associated with print media. For example, product or service information associated with print ads or a catalog is optionally compiled by the data warehouse 30 and transmitted to the user devices 40. The user inputs product information into the user device 40 from the print media or selects the appropriate product or service from data already in the user device 40. For example, the user obtains a newspaper or catalog with a product description or advertisement. Either keying in a product identification code or reading a bar code, the user device 40 generates a transaction request, such as a purchase associated with the code. For example, the bar code reader of the user device 40 scans a bar code on an advertisement. Where product or service identification and associated source information is already stored in the user device 40, the user device 40 obtains the appropriate transaction information for the transaction and processes the order as discussed above in other embodiments. The source of the product or service then provides the product or service to the user's billing address or another address programmed into either the user device 40 or the data warehouse 30.

In alternative embodiments, the product code or bar code information entered into the user device 40 by the user includes an identification of the source of the product. The code information is included within the transaction data provided from the user device 40 to the data warehouse 30. The data warehouse 30 then uses the code information to identify a source of the product or service. The transaction is then processed as discussed above. Alternatively, the product or service information is compiled at the data warehouse 30 but is provided to the

user device 40 once a request associated with the product or service is received from the user device 40.

Additionally, the product or service code information may include a price. Alternatively, the data warehouse 30 obtains price information from the source of the product or service based on the product or service code and communicates that price information to the user device 40 or the data warehouse 30. Payment is performed by the network 20 or by billing the user.

In another embodiment of the network 20, a real time interactive bidding process is provided. Product or service identification information and description information are transmitted to the user device 40 from the data warehouse 30. A user may input a bid on the user device 40 for the product or service. The bid is sent in real time to the data warehouse 30. The data warehouse 30 transmits bids from other user devices 40 as well as from other sources, that are compiled to each user device 40 involved in the bidding process. Additionally, the bidding information may be transmitted to other user devices 40. At the end of the bidding process, a purchase transaction is generated and provided to the data warehouse 30 for the winning bidder. The product or service is then purchased as described above.

In yet another embodiment, various information services may be purchased using the user device 40. For example, the user desires to purchase news or other information services. The user selects such services and generates a purchase transaction. The news or other information purchased is then provided to the user device 40 by the data warehouse 30. For example, a weekly news service information letter is transmitted to user devices 40 that have purchased rights to that information. The news or other information is generated by the data warehouse 30 or another source.

Referring to Figure 5, another embodiment of the user device 40 for use with the network 20 is shown. The user device 40 comprises a virtual wallet or a digital electronic wallet. As discussed previously, various user input devices are provided as well as the display 90. A card reader, such as a smart card or credit

card reader, is provided as a swipe slot 91 on the user device 40. A radio frequency two-way receiver and antenna 93 are also provided. At least one digital input and output connector 95 is also provided. An infrared transceiver 97 is included. In this embodiment, the user device 40 comprises a foldable case sized to fit within a person's pocket. The virtual wallet user device comprises a personal data assistant and an impulse transaction system as discussed above. Other functionalities may be provided.

In one embodiment, the virtual wallet user device 40 is configured to communicate with point of sale systems as discussed above. The user device 40 may also communicate with other similar user devices. For example, using the infrared transceiver 97, or the digital input/output connector 95, the user device 40 arranges for the receipt or transfer of finances from one user device 40 to the other user device 40. For smart cards, the financial transfer may be direct without any further direct communication with other devices. For credit card or bank account transactions, at least one of the two user devices 40 communicates with the data warehouse 30 to arrange for the transfer transaction. Using the transaction capabilities, a transfer of funds free of Internet content (e.g. download) is provided on a portable device. While some of the transaction steps may include Internet communications, the user device is not required to download Internet content to perform the transaction.

The virtual wallet or other embodiment of the user device 40 may also display a summary or record for each source of finances. For example, a checking or savings account record is displayed in real-time on the user device 40. The summary information is either received from the bank or other source through the data warehouse 30, downloaded from another device such as a computer, or entered manually by the user. For downloading from another device or receiving the information from the data warehouse, the user device 40 and other records of the source of finances are synchronized. For example, a software program maintains an account record on a computer. Using an infrared communications, purchase or financial transfer transactions performed by the user device 40 are

communicated to the computer for synchronization with the software record or summary.

Preferably the user device 40 conforms to any appropriate government or industry standards, such as Regulation E of the Federal Reserve System, Class B Digital Devices of FCC regulations, and any ANCE banking or other financial regulations.

Any of the various embodiments discussed herein may be combined into one embodiment. Functional components may be omitted or included as needed to achieve the desired functionality.

#### **IV. OTHER EMBODIMENTS USING ASPECTS OF THE NETWORK OR USER DEVICE:**

The two general embodiments discussed below correspond to the two provisional applications referenced above. Each of these general embodiments incorporates one or more of the features or embodiments described above.

##### **A. A System and Method for the Acceptance and Transmission of Content Description and Interactive Information.**

A system and methodology for: (1) content description aggregation (gathering), (2) content recording, storage, playback and manipulation, and (3) a method for an interactive content tracking and management is provided.

A plurality of Radio Stations each have the ability to communicate information about the currently aired content, PLAYLIST information, including (1) Name of the song playing, (2) album and artist name, (3) Product Code, and other miscellaneous information. A Radio Receiver receives the content information, lets call that the Receiving Device. Finally, a system capable of receiving the PLAYLIST information and sending it to a plurality of Receiving Devices is provided, if the PLAYLIST information is not encoded in the content itself (a Tracking System).

A Listener of a Receiving Device hears the content, and receives a display of what is playing, and further, with Product Code information, it is possible for a User to Purchase, Sample, or otherwise interact with the content itself through some Impulse Buy, eCommerce, or other form of electronic transaction without much effort. A new revenue stream is made available to Radio Stations that does not exist today. Further, enhanced marketing and advertising revenue streams are similarly created based on this enhanced functionality.

In one embodiment, a unified (clearing house) system to receive and control a plurality of PLAYLIST data from a Plurality of Radio Stations is provided to supply one unified Re-transmission to a plurality of Receiving Devices. Further, it is possible for a simplified rollout of new digital Receiving Devices, that will be compatible with all Radio Stations, and further enable enhanced interactive services utilizing the content and data of a typically one-way broadcast medium.

In a non standard implementation of an embodiment, it is plausible to send real-time book, chapter, sentence information for people to follow along with an Audio-Book, or perhaps, it is able to send electronic pointer information so that a computer can follow along with a distance learning course (perhaps passing URL's for the World Wide Web, or a reference to a file on a CD-ROM, etc...). The content description information is completely modifiable, and transmittable at any time-period as set by an embodiment of a PLAYLIST.

PLAYLIST information can be generated in numerous ways, including, but not limited to, (1) Typed into a PLAYLIST computer program which is capable of sending information to a Tracking System, (2) Sent from an automated PLAYLIST generator program, (3) keyed data in real-time from personnel at a Radio Broadcast Station, (4) stored information that was created previous to a broadcast, with PLAYLIST data, and Time Stamps identifying Start and End Times.

The PLAYLIST data is transmitted. Depending on the embodiment, this can be accomplished by (1) encoded in the content stream and sent through the



broadcast, (2) as separate data sent to a Tracking System or Receiving Device directly. Such transmissions could be wireless or wired. Such PLAYLIST can go through a Tracking System (Clearing House) but does not need to. Further, an embodiment can include interactivity data, including URL, or other network address information, which could allow direct interactivity between a Receiving Device and a Radio Station, without the need for an external Clearing House Tracking System.

As can be seen from a sample embodiment as shown above, two benefits are provided to traditional Radio Broadcast Stations, (1) creating new revenue channels via interactive services, including, but not limited to (a) Pay-Per-Listen, and (b) commerce or consumer purchases, and (c) increase advertising dollars via better marketing information, and (2) keeping an informed Listener by way of supplying information about the content being played, which could include, but not be limited to, (1) Songs, (2) Commercials, (3) Talk Radio Guests, (4) Audio-Books, (5) Live events, (6) conferences, and (7) distance learning.

This functionality could be integrated into an existing control system. This functionality will include the capability to transmit PLAYIST (Content Description) information to a Tracking System located at a physically separate location, using a plurality of communications methods which could include, but not be limited to landline (phone), Satellite, and/or wireless data networks.

The Content Description information could include, but not be limited to, Station-Name or ID, Song Title, Album Title, Commercial Sponsor, Resource Locator, Phone Numbers, trigger information and linking information. In an embodiment, Resource Locators could be a Product Code for an Item (similar to unique ISBN numbers for books, or UPC codes for food products). Linking information may be a track number, spot number or some other identifier that indicates the specific content being played, if not fully defined by a Resource Locator. Further, textual information, such as a human understandable group of letters or words could be transmitted which define information related to the play of information. Further, trigger information could be included which would allow

for a Radio Station to send or Request information of a plurality of Receiving devices, for instance (how many people are listening?), (users, please vote from #1 - #10, did you like this song?), and so on.

Content Description information can be provided from the source on a Real-Time bases, wherein it is transmitted simultaneously with the content itself, or could be transmitted in a before hand time, perhaps an embodiment could send a complete PLAYLIST for a day or so, which separates content by Start and End Broadcast Times.

Once the said content description and/or trigger information has been sent to a content description Tracking System, this information will be distributed to the various listening devices based on selection information. For instance, a plurality of receiving devices "tuned" to channel "1" would receive real-time information as it relates to "channel 1", while a plurality of receiving devices "tuned" in to channel "2" would receive real-time description information as it relates to "channel 2". Different receiving devices may receive different versions of the said content description information, based on features and functions available in an embodiment of a receiving device.

Upon the Receiving Device receiving the said Content Description information, it is plausible that the information could be used for functions including, but not limited to, (1) displaying the information, (2) allowing the purchase of specific content, (3) survey capabilities, (4) questionnaires, (5) advertising promotions, (6) statistical information gathering, and much more.

In an example embodiment, a Radio Station may be equipped with software that allows for the entry of Play-List information. This could include a plurality of song titles, length of play time, with a plurality of commercial and promotional spots which could include Spot name, length of play time, etc... of which such a list could be arranged in a play order. Having completed such a play-list, an embodiment looks for real-time changes in this PLAYLIST of a plurality of Radio Stations (for instance a new song starting, an advertising spot

started, etc...) and instantly send that Content Description information to a Tracking System.

A program allows for this information to be transmitted via a communications link to a Tracking system capable of receiving the said content, or encoded in the content for transmission.

In an embodiment, a Windows software application could be written, which allows for data entry (or integration into an existing play-list system), which could also have the capability of sending and receiving TCP/IP packets over the Internet (assuming the computer is connected to the Internet) to an embodiment of a Tracking System, which would also be connected to the Internet. In this embodiment, a Tracking System may be capable of receiving a plurality of Content Description information from a plurality of Radio Stations, whereby said Radio Stations would have a unique ID to distinguish each from the others. In an embodiment, a simple protocol can be used whereby simple commands are used to send and receive the needed and/or requested information. This protocol need not be unique or proprietary, and could even be a version of the HTTP (World Wide Web) communications Protocol. In this embodiment, it is possible to have a Tracking System which is maintained, programmed and operational using existing Web Server and Programming techniques.

An embodiment of a Tracking System could then use the Content Description information to communicate with connected Receiving Devices, or potentially reformat, and re-broadcast over several different mediums. The Tracking System would then be responsible for Receiving Device Responses, Triggers, Requests, and Purchases. In an embodiment of a Tracking System, functions such as auditing, managing and reporting functionality could be made available to a plurality of Radio Stations. An example would be that a Radio Station is playing "With or Without You", by the Artist "U2", at which time a user of a receiving device selects "Purchase CD", whereby a Tracking System records the purchase, fulfills the order, and reports back to a Radio Station the transaction.

The components necessary and a system to implement such a transaction are provided.

As an example embodiment, it is possible that a new generation Radio Receiver is in the home of a user, tuned into a radio channel, and receiving not only the music, but information about the music, as well as the cost to purchase the current song or the Album it is on. This provides a mechanism whereby all Radio Stations would communicate with one Tracking System (instead of hundreds of Radio Receivers), whereby making the consumer purchase easier, more reliable, and much less prone to having an appliance that will become obsolete. Further, this enables not only user ease of use, but Radio Stations ease-of-deployment, and a much more open source of revenue.

In an embodiment, it is possible to enable impulse buy, whereby a listener could purchase an item being sold immediately (based on Content Description Information that is sent), which does not need to actually present the information being broadcast. Further, the system and methodology will work identically either in a traditional "over-the-air" broadcast, or in an Internet "Streaming" type application, such as a Real-Audio Stream. This embodiment describes a communication of Content Description Information, and a mechanism for Two-way interactivity utilizing said Content Description Information.

Figure 7 refers to a simple embodiment whereby the systems and methods are described as an embodiment could be used by a plurality of Radio Stations to enable interactive services with Receiving Devices capable of such activity.

Figure 7 shows an embodiment of a Content Source (1100), which could be a plurality of Content Broadcasters, which could include, but not be limited to (a) Radio Stations, (b) Television Stations, (c) Internet Web-Casters, (d) Streaming Media Providers, (e) Music and Record Studios, (f) any other source of audio, video and/or data content. In this embodiment, a plurality of Content Source (1100) each have at least one Content Description Module (1101). Note that this system can be located elsewhere, but typically each said Content Source (1100)

would have access to some form of a Content Description Module (1101), with capabilities of modifying information particular to said Content Source (1100).

A Content Description Module (1101) is a embodiment of software that is responsible for (1) the creation and transmission of Content Descriptions (Data) which will be sent to an embodiment of a Tracking System (1300), or encoded into a content stream and broadcast by a Content Source (1100), or transmitting partner on behalf of a Content Source (1100). Information gathered, created or otherwise developed could include a plurality of PLAYLIST information, which could be a plurality of data records, which can include, but not be limited to, (1) Type of content [commercial, song, guest speaker, etc], (2) name of content [song title, sponsor, etc], (3) producer [Artist, Studio, Host, etc], (4) Product Code [Album ID, Commercial Sponsor ID, URL, etc], (5) Start Time, (6) End-Time, (7) Run Length, (8) Station ID, etc...

An embodiment of a Content Description Module (1101) can be made of functional units, including but not limited to, (a) a Data management and manipulation control Module (1102), (b) a Connection API (1103), a Receiving Data Processing Module (1105), and (c) a Network Interface (1104).

A Data management and manipulation control Module (1102) in an embodiment could be responsible for the user interface, and database management system which allows for the entry, storage, manipulation, and transmission of Content Description Information. The Data management and manipulation control Module (1102) can send and receive and process any and all messages back and forth between a Data management and manipulation control Module (1102) and a plurality of Tracking Systems (1300). This system in an embodiment could be written in Microsoft Access, with ACTIVEX controls for network communications, and an interface for a DJ (if it is a Radio Station for example) to enter real-time information, and have the system updated. It is also possible that an embodiment could "Batch" the Content Descriptions (PLAYLIST) for a period of time, in hours, days, weeks, etc... a Data management and manipulation control Module (1102) could be capable of sharing data located on an embodiment of a

Tracking System (1300) which could contain information such as Album searching and sorting, Product code information, Company ID's for sponsorships, etc... An embodiment of a Data management and manipulation control Module (1102) should contain management interfaces for reporting, auditing and other manipulation of data that a Tracking System (1300) may provide. For instance, an embodiment may have the ability to send a question to all "listeners" using a trigger which asks, "If you liked the song you heard, Press #1, otherwise Press #2", in which case any responses generated by a Receiving Device (1500) would be passed from a Tracking System (1300) to a Data management and manipulation Control Module (1102) or if available a Received Data Processing Module (1105). In this example, it is possible to see real-time results of responses from a "listening" audience. Again this example would be applicable to an embodiment designed to work with a Radio Station as an example.

A Connection API (1103) is a module that an embodiment could use to provide external connections to other management, PLAYLIST or operation support systems. An embodiment of a Connection API (1103) could be used as a gateway, or connection interface to allow legacy systems to gain new interactive functionality as described in the systems and methods. An example embodiment may use Microsoft Windows Dynamic Link Libraries (DLL), or ODBC database connectivity to read from other programs data or databases to gain access to PLAYLIST, Content Description, or any other needed data that can be used for operation or execution. In the example embodiment designed for Radio Stations, software currently exists to allow Radio Stations to prepare play-lists, prepare digital automation techniques and other management systems to control the flow and timing of content to be aired. It is an embodiment of a Connection API (1103) that could allow those systems to talk to an embodiment.

A Received Data Module (1105) could be designed in an embodiment which would allow enhanced data manipulation, storage or management of received "User Responses" from triggers, or Statistical, order or other

demographic information that may be received by an embodiment of a Tracking System (1300).

In an embodiment of a Content Description Module (1101) would be a Network Interface (1104). A Network Interface (1104) would be responsible for the management of a communications link between a plurality of Content Description Modules (1101) and a Plurality of Tracking Systems (1300). In general, if an embodiment was to connect a Content Description Module (1101) to a Tracking System (1300) via the Internet, then an embodiment could be made of an Ethernet Card, with TCP/IP protocol running with the proper external connections available for proper communication, of which could include hubs, routers, switches, etc... a Network Interface (1104) could use wireless mechanisms as well, including RF, PCS, Satellite, etc...

Now that a Content Source (1100) has the capabilities to create Content Description information, we must assume that communication is handled through a communication link that is formed directly, or indirectly (in the case of an embodiment using a wide area network, such as the Internet), and such communication through a link (1200) would properly connect to an embodiment of a Tracking System (1300). In an embodiment, a Content Description Module (1101) could be programmed with an Internet Address of a server it is setup to communicate with.

With a complete embodiment of a Content Description Module (1101), lets assume that data (for use as an example) is sent at a point in time to an embodiment of a Tracking System (1300) through a communications link (1200) with the following information: (STATION="WHTZ", FREQ="100.3", TIMESTART="11:35:32", TITLE="With or Without You", Artist="U2", PRODUCTCODE="1202XW1Z"). More information could be included. This data is for example purposes only.

A plurality of Tracking Systems (1300) in an embodiment could be a simple World Wide Web Server, with proper CGI or other scripts developed to interact with commands and/or responses between an embodiment of a Tracking

System (1300) and an embodiment of a Content Description Module (1100). Such communication would be made through a communications link (1200), connected to an Network Interface (1303), which in an embodiment could be an Ethernet TCP/IP connection over the Internet. Further, a Tracking System (1300) in an  
5 embodiment could also be capable of communicating with a plurality of Receiving Devices (1500).

An embodiment of a Tracking Server (1301) could be made of an embodiment of a Data Management and Manipulation Control Module (1302) in an embodiment could be database management system, capable of storing, and  
10 processing real-time and stored Content Description (PLAYLIST) type data. As referenced as sent information above for example purposes, lets follow the trace. Data is sent by a Content Description Module (1101), it is received in an embodiment by an HTTP server, which has the proper scripts to update a database with the information sent. A Data Management and Manipulation Control Module  
15 (1302) could then process the data to see if any Receiving Devices (1500) is "tuned" into the appropriate channel, in this case STATION="WHTZ", FREQ="100.3". For all Receiving Devices (1500) "tuned" in, an embodiment could then send a "Content changed" message, which could then send the data as received by a Content Description Module (1100). It is also a possibility that an  
20 embodiment of a Data Management and Manipulation Control Module (1302) could send information to a Content Description Module (1100) whereby such data maybe Receiving Device (1500) responses to questions, or demographic information, Receiving Device Purchase information, etc...

In an example process of an embodiment, it is clear to see that a Content  
25 Source (1100) could broadcast a song "With or without you", by the artist "U2", send this information to a Tracking System (1300) via a Content Description Module (1101), whereby a Tracking System (1300) could send that information to a plurality of Receiving Devices (1500), whereby a Purchase could be made by a plurality of Receiving Devices (1500), to which that transaction could be  
30 transmitted back to a Tracking System (1300) which could verify and process the



order, fulfill the order, and send audit information back to a Content Description Module (1101) that began the transaction.

In an embodiment of a Tracking System (1300), an Interactive Server (1304) could be put in place that takes the workload off a Tracking Server (1301),  
5 whereby additional checking, processing, monitoring of real-time and stored data and transactions can be processed. An embodiment of an Interactive Server (1304) could be responsible for communication with a plurality of Receiving Devices (1500) via a network communications link (1400).

In summary, Figure 7 shows an embodiment of the systems that can be put  
10 in place to complete various objectives. In general, a content source creates and provides various data to a tracking system. A tracking system is then responsible for transmitting the appropriate data to a receiving device based on various parameters. Further, a tracking system must be able to receive information and data from a Receiving Device, such as purchase information, or perhaps a request  
15 for more information inquiry, whereby the necessary data is processed, and further making it possible that information could then be passed to a content source. This full circle, communication infrastructure as described enables a system to act as a clearing house for a plurality of Content Sources, whereby enabling mass adoption, controlled rollout, and new and enhanced interactive services. This  
20 removes the traditional limitation of a one-way, unintelligent broadcast transmission as could be typically found in a Radio Broadcast Model. With the advent of Audio and Video Streaming (for instance over the internet), this further enhances that type of model by offering interactive features and services that still would not be available. Further, an embodiment would also stimulate numerous  
25 types of direct sale, direct market, and other campaigns, promotions, giveaways, or other types of marketing, or sales programs that would otherwise be impossible to implement, and further, an embodiment could also supply the two-way link, that would be needed for raffles, donations, fund raisers, surveys, polls, and all sorts of other interactive data gathering that would be impossible otherwise.

Embodiments could use any form of communication or network links, utilizing any form of network protocol, although an Internet connection using TCP/IP is preferred for simplicity. Further, any form of database management, or front end development environment can be used, although Microsoft products are referenced for its global acceptance, and vast pool for programming and development resources. Further, PLAYLIST data may be sent to Receiving Devices in Batch or real-time mode. There are times where Batch mode may make more sense due to network congestion, peak times, and other efficiency issues. Further, it is not necessary to implement an HTTP server for communication, although an example is given due to its ease of programming, and wide available base of ready-to-use resources. Further, applications or modules can be local, or distributed over a plurality of locations, without regard to features or functionality, whereby as an example a Content Description Module does not have to be a full application running at a Content Source, however, it could be any form of technology, including a Browser Plug\_in, or perhaps a Java Application. No limitation is put on an actual embodiment of any system.

**B. A System and Method for the Selection, Purchase and Transmission of streaming Audio, Video and Data content to an electronic apparatus:**

A system and methodology is provided for: (1) content aggregation management (gathering), (2) content recording, storage, playback and manipulation, (3) content distribution methods for Fixed Form Media and a plurality of real-time or other streaming formats, (4) a Content Control System (100) to handle the multimedia content, (5) a database structure to manage the functions described herein, (6) electronic sale and order fulfillment, (7) Security, (8) licensing maintenance, (9) a method for an interactive data channel for content tracking and management, (10) ability to generate User Apparatus (102) selectable "virtual" channels of audio and video content, (11) a system to implement surveys,

polls, gaming and other information gathering from a plurality of User Apparatus (102) to a Second Party connected to a Content Control System (100).

The audio, video and data content described is managed and/or controlled and/or stored and/or accessed and/or sorted and/or streamed and/or sold and/or  
5 Played and/or Recorded and/or Produced, by a plurality of Content Control System(s)(100a, 100b)(100) communicating with a plurality of User Apparatus (102a, 102b)(102). A Content Control System (100) as described above can be connected via a plurality of Communication Networks (101).

A plurality of Communication Networks (101) are made accessible to a  
10 plurality of User Apparatus (102), which can be computers and/or other electronic devices or apparatus, including set-top-boxes, consumer electronic appliances, radio receivers, home entertainment devices, modems, computers, hand-held devices, car equipment, and other gear capable of receiving electronic or optical signals.

Connections between a User Apparatus (102) and a Communication  
15 Network (101) can include any delivery system capable of establishing two way electronic communications, including, but not limited to a wired and/or wireless transmission system, digital and/or analog systems such as telephone, SONET, Optical, cable, satellite, PCS and cellular systems. The Communication Network  
20 (101) does not need to have intelligence, understanding and/or any other knowledge of the connection between a Content Control System (100) and a User Apparatus (102), although it can.

A Content Control System (100) as described is capable of two-way  
25 communication between a plurality of Content Control Systems (100), and/or a plurality of User Apparatus (102). All functions and needed interaction can be managed and/or manipulated through this communication connection, such as set-up, information exchange and messaging, content receipt and/or delivery, order processing, selection and/or acquisition of content, and/or any other form of digital information needed to be passed back and forth.

A Content Control System (100) as described could also be capable of connecting, and communicating database information and systems for the storage and manipulation of data, which can be combined, further broken down and defined, and/or be a subset or superset of the following:

5           (1) **security information**, which can contain smart-card ID's, Internet (IP) addresses, Ethernet controller ID numbers, user passwords, or any other information needed depending on the security scheme(s) implemented in an embodiment.

10           (2) **licensing information**, which can contain lists of users and the allowable content they have access to through either purchase or some other given right, or any other information needed depending on the licensing scheme(s) implemented in an embodiment.

15           (3) **user information**, which can contain user names, ID's, Passwords, Home/office/billing addresses, Credit/checking/debit account information, or any other information needed depending on the user information scheme(s) implemented in an embodiment.

20           (4) **demographic info**, which can contain user interactions and other user information, including, but not limited to age, sex, income, occupation, etc... It may also manage or maintain lists of content and services that individual users have played, previewed, or otherwise visited or interacted with, such as what channels a user listened or watched, and for how long, or any other information needed depending on the demographic scheme(s) implemented in an embodiment.

25           (5) **media location information**, which can contain information needed to find, retrieve or store, all forms of digital media assets available to a plurality of User Apparatus (102), such as audio files, video files, streaming ports or paths, Radio Channels, Albums, other data-paths for interactivity, routing information, and or other media connection, directory, routing or switching, etc, or any other information needed depending on the media search and/or location scheme(s) implemented in an embodiment.

(6) **Content Descriptors**, which can contain information including zones, regions, radio frequencies, television station information, virtual channel information, logos, albums, songs, audio book information, authors, writers, publishers, media location pointers, ID numbers, tracking information and/or items  
5 needed or used to display, locate, track, manipulate any form of audio or video or data content available, or any other information needed depending on the content description and pointer scheme(s) implemented in an embodiment.

(7) **Order Information**, which can include order dates, tracking and fulfillment information, money issues, and/or any and all other information related  
10 to orders, tracking, shipping, etc, or any other information needed depending on the order processing scheme(s) implemented in an embodiment.

(8) **Vendor and Merchant Interaction Systems**, which can include information related to third party affiliates, vendors or sales channels which connect to a Content Control System (100) part of this embodiment to modify  
15 customer license, receive or request user response or trigger information, or retrieve user demographic information, or any other information needed depending on the vendor and merchant scheme(s) implemented in an embodiment.

(9) **user-theme and/or sorting category information**, which can include global and user defined preferences for licensed or available audio, video and data  
20 content and materials, broken into categories, genres, classes, and or other types of groupings that might be useful for display, selection, grouping and/or Playback and retrieval, or any other information needed depending on the sorting and categorizing scheme(s) implemented in an embodiment.

(10) **Play-List and Advertising Locators**, which can contain information  
25 including a description or pointer to media locators, in or near real-time, which define or describes a currently playing audio, video or data content on each and every "radio", "television" and/or "virtual" channel available to a User Apparatus (102), such as a song or commercial on a radio station, a television show or commercial and/or current advertising spot. For instance, this information could be  
30 used to interact or engage a trigger action to a User Apparatus (102), it could be

used to set a pointer between a playing song, and a particular User Apparatus (102) requesting to be taken to the trial mode for the album of the currently playing song, or any other information needed depending on the Play-list functionality scheme(s) implemented in an embodiment.

5           (11) **Virtual Channel Control**, which can contain information needed for a Content Control System (100) to create, and produce a plurality of real-time channels, for audio, video and data content. Parameters included could be pointers to an encode system, which would take the content selected by a Content Control System (100), and then be made available as a broadcast channel to a User  
10   Apparatus (102), define an Ad-Insertion demographic scheme, Content play criteria, sorting, selecting and time criteria, and many other parameters that could be used to provide a unique, potentially individualized per User Apparatus (102), based on stored content, procedures or algorithms. An example of a virtual  
15   channel maybe a virtual "Rock" Station, where parameters are defined in the virtual channel control database to select at random a song as defined in the Themes database as ROCK, and will insert a commercial after every three songs which is requested for a rock station, maybe a beer commercial for instance. In  
20   this previous example, the information needed for the set-up of this virtual channel could be defined in the Virtual Channel Control database. Benefits to this system would be that no people are required to run the channel, and advertising can be  
25   targeted to the demographics of the users tuned in at the plurality of User Apparatus (102) at a given point in time, based on live audience demographic data that could be available, or any other information needed depending on the content or virtual content creation scheme(s) implemented in an embodiment.

30           (12) **Trigger Control**, which can contain information needed for interaction between a plurality of User Apparatus (102) with a plurality of Vendors, a plurality of Content Control System (100), or any of the available channels, or any other information needed depending on the trigger scheme(s) implemented in an embodiment. Triggers could be defined to enable User  
35   Apparatus (102) to respond in real-time to a Vendor or System survey, Vendor or

System poll, a gaming application, a lottery, or a User Apparatus (102) initiated request. For instance, a User Apparatus (102) could request a trigger for the song "with or without you" by the artist U2, in such a case, a Content Control System (100) application could continuously check the trigger database, and the Playlist database for a match in real-time, in which case, a Content Control System (100) could then send a "tune in to channel XYZ" message to the User Apparatus (102) that originally requested the trigger, which could then instantly begin playing that radio channel. Many other uses are available for User Apparatus (102), or System Control initiated triggers, one other example, could be a radio station which generates a trigger to all User Apparatus (102) which are currently "tuned in", such that they may answer a question by pressing a number on a control pad, whereby the results would be returned to the vendor (maybe a radio station for instance). As is obvious from the above description, Triggers are three-way, they can be generated from a User Apparatus (102), a Content Control System (100), or a Vendor attached to a Content Control System (100).

(13) **Content**, which can contain digital audio, video and data content, or pointers to the physical files, which contain such digital information, or any other information needed depending on the Content storage and retrieval scheme(s) implemented in an embodiment.

A system and methodology provides three functional parts, (1) a management system made of a plurality of a Content Control Systems (100) (PARTY1), (2) a network infrastructure made of a plurality of Communication Networks (101), and (3) an audio, video and/or data listening and/or transmission device, made of a plurality of User Apparatus (102) (PARTY2).

The Content Control System (100) is a system, with computer server capabilities, including, but not limited to network communication and database access and/or management.

Server functionality of a Content Control System (100) could be made by proprietary systems or by the functionality found in a simple or enhanced World Wide Web server (WWW), typically used on an Intranet, or the Internet, but does

not necessarily need to be of open standards. Further, an embodiment of this functionality can be provided on any type of network protocol available to said system, including but not limited to, (1) TCP, (2) UDP, (3) TCP-IP, (4) IPX, etc.... Server functionality must be able to listen for requests or responses, and send requests and responses. Such an embodiment could be a WWW server running on a TCP-IP protocol on a WindowsNT server. Using a combination of common standards, such as HTTP, HTML, TCP-IP and UDP, a server can be configured to receive HTTP requests from a User Apparatus (102), and/or respond to a HTTP server or client with such standard methods. It is not necessary to use common standards. For instance, a custom server application could be written using TCP-IP, and setting up a socket and port upon which the server is "listening" for requests and responses.

Requests received in these types of formats, must be processed through an application, which could be a separate application, server scripts (Active Server Pages, CGI, Perl, etc...), or custom applications and handlers.

To show the flexibility, the embodiment will show a use of the Active Server Page and/or CGI capabilities of a WWW server on a WindowsNT machine for such handling. Further, it must be recognized that not all of these approaches exist on all platforms, for instance, active server pages do not exist, or might not exist on WWW servers that run on a SUN Solaris computer or operating system. Therefore, this allows for open or proprietary message handling. The remainder of this description will assume WindowsNT, with a WWW server running and capable of Active Server Pages (ASP) for simplicity.

Database functionality of a Content Control System (100) could be available for storage management, and information management needed by a Content Control System (100) that manages a plurality of User Apparatus (102) sessions and related or needed information. One embodiment of this approach could be to use a Microsoft SQL server "connected" to the WWW server, or potentially on the same machine.



A Content Control System (100) is capable of handling User Apparatus (102) requests, and is further capable of sending or receiving information for various services, including, but not limited to, (1) log-in, (2) licensing information, (3) content requests, (4) order processing, (5) content feeds, (6) trigger communication, (7) User Apparatus (102) setup, (8) vendor integration, and any other communication needed to go back and fourth, and is further responsible for acquiring, potentially storing, and administering distribution capabilities for audio / video and data content.

A Content Control System (100) is further responsible for all database and other systems needed to store, manipulate, or communicate information with a User Apparatus (102), to handle all or some of the available functionality, which can include, but not be limited to, (1) audio playback, (2) video playback, (3) content purchase, (4) streaming playback, (5) user security and (6) connection capabilities, and other needed systems.

The second portion is made of a plurality of Communication Networks (101). A Communication Network (101) can contain any number of network connections, and/or data connections as needed to facilitate an electronic communication between a plurality of Content Control System (100) (PARTY1) and a plurality of User Apparatus (102) (PARTY2). This connection can be made by a dial-up modem, dedicated telecommunications service, cable and/or cable modems, wireless data including PCS / Satellite / other, and/or any other mechanism available for two-way electronic communication. Further a Communication Network can be a private, public, local or wide area network, or Internet network or connection, or combination thereof.

Finally, the third component, a plurality of User Apparatus (102), can be any electrical system, which could be a computer, simple consumer electronic device, or other embedded electronic device that is capable of receiving an electronic or optical signal and processing one or all of digital audio, digital video and/or data content for output into one or all of, an audible device (speakers), visual display unit (LCD, TV, Monitor, etc...), or output port or bus (1394, USB,

Audio-Out, Video-Out, or any other electrical interface), and is further capable of establishing a connection with a Content Control System (100).

A system involves a connection between PARTY1 and PARTY2, whereby one or many features could be made available, including, but not limited to, the selection, playback and/or recording of audio, video and data content.

A system of this nature can be extended by connections to EPG (electronic program guides), paper catalogs, electronic catalogs, wireless remote controls, or other manual and electronic systems for sorting, displaying, categorizing or otherwise selecting items related to audio, video or data content in a sequential, time based, random, or other organized manner.

Further, a system involves a mechanism for the communication between PARTY1 and PARTY2 to "mimic" traditional ways of content selection, including radio models (tuning in to a station), television models (changing channels), catalog product Id's (similar to UPC codes on food packaging to distinguish one product from the other), and World Wide Web (URL) models, among many other possibilities.

Functionality for audio content can include, but not be limited to, the selection of various radio stations, which can be sorted by zones (geographic regions), sub-zones which are smaller regions within a zone, theme or content or radio style or type, and/or by frequency number or station name, or virtual stations based on content theme or category. Selection of audio content can also be performed by selecting a previously licensed (purchased or otherwise) album from a menu, and/or selecting one or more previously licensed (purchased or otherwise) songs or titles from one or more previously licensed (purchased or otherwise) albums or content in a sequential, programmed or random fashion.

Audio content can also include music "trials", whereby a User Apparatus (102) would be authorized to sample (maybe 20 seconds, or some other definable plurality of time periods) of each selected title or song or content of a User Apparatus (102), or could be a randomly selected album or other form of unlicensed audio content for trail-listen-before-purchase type applications. In the

later case, this could allow a user of a User Apparatus (102) to enter a media catalog number (album, or other content code) into the User Apparatus, or by selecting a title or by some other sorting means, or by having a Content Control System (100) randomly select an unlicensed audio content asset, which could have  
5 been based on current licensed content, tastes, themes, genres, or other available demographic or other information, or other mechanism, and allow a trial preview of such audio content. A user could have the option of initiating a license purchase (which would then allow complete listening, and could also produce a shipment of some Fixed Form Media (tape, CD, DVD) to a location of choice of that licensed  
10 audio content material.

Audio trial mode could also be initiated by a "cross-link" which could be initiated by a user listening to a radio station, who likes the song that is currently playing, and decides to either manually or through some automatic mechanism, enter trial mode, which would automatically select the album of the song that is  
15 playing, and allow for Trial-before-purchase type applications.

Upon actual selection of content (radio channel, album, song, audiobook, etc...) by any of the available selection methods, and upon a message received by a Content Control System (100) of such content, a Content Control System (100) will be responsible for "finding" the content, and providing a mechanism for the  
20 retrieval of that content by a requesting User Apparatus (102). This may include Port or socket numbers, server addresses, and/or any other needed information for the content to be gathered from any location of choice by a Content Control System (100).

As with audio content above, this applies to video content in the same  
25 manner. For instance, the metaphor of a radio station could be a broadcast TV station or video feed, a cable channel, etc..., as well as an album or song could be the metaphor of a VHS tape, DVD, Beta, Hi8, etc, or any other fixed form media available to store video information.

Trial-before-purchase type applications allow a User of a User Apparatus  
30 (102) to hear, or see a small portion of content that the user is currently not

licensed to hear or see. Thus in this case, giving the user the capability to insure the selection they perhaps are going to purchase is what they are looking for. For instance, suppose a user of a User Apparatus (102) is in search for particular album of an artist with twelve albums. Instead of purchasing the wrong album, a user can "trial" each of the albums until the right one is found, then potentially initiate a purchase of the correct album.

It should further be mentioned that in trial mode, the Content Control System (100) might contain information that would force or allow alternative content to be played, other than the user-selected content. For instance, if a particular movie is selected for trial playback, then trial mode may have a movie trailer available, instead of a selected duration of actual movie viewing. Further, perhaps an audio book is selected, then trial mode may have a quick overview available for playback.

This also applies to data content in two forms, (1) streaming data and (2) interactive data. Streaming data could include Digital content, or raw data, such as Stock Tickers or quotes, news alerts, etc.... Interactive data could include protocol or control information being passed between PARTY1 and PARTY2, or other content or content information that is shared between PARTY1 and PARTY2.

Any digital content that is usable, and integrated into a Content Control System (100), can be encoded, and or decoded using a variety of off-the-shelf or proprietary CODECs, including, but not limited to, MPEG, AVI, RA, ASF, GSM, CELP, ACELP, H.323, etc.

This enables a mechanism for "virtual" content that would allow a User Apparatus (102) to potentially select media and information that is of importance or interest, and have a Content Control System (100) send "personalized" video or audio content via this content or "virtual" selection process. Similar features and functions are defined on a global scale in the "virtual" channel section, but could also be specific "virtual" channels per user, or per individual or a plurality of User Apparatus (102).

It is intended that these embodiments not be limited to digital audio music and can include digital video, digital commercials, digital images, and/or all other forms of digital information..

Figure 8 shows the basic overall interaction among the three core sections of the system described. A plurality of Content Control System (100a, 100b)(100) can be defined as a plurality of computers, which can be configured in any manner, with a plurality of computer systems, with a plurality of operating systems, and/or a plurality of local and/or wide area network architectures and connections.

A Content Control System (100) contains the necessary functionality to provide server, storage and/or interactivity with outside applications and database connectivity and functionality, of which, any and all of these functions can be provided on a plurality of computers, systems and/or processors, in any configuration available with any, including the many well known software, hardware and architectures available to the public.

A Content Control System (100) can connect to a plurality of Communication Networks (101a, 101b) (101), via any number of available Interfaces (103) including, but not limited to, Frame-Relay, ISDN, T1, DS3, Ethernet, ATM, SONET, DSL, Routers, Switches, Wireless, Cable, Satellite, etc....

A Communication Network (101) can include a plurality of local area networks (LANS), wide area networks (WANS), Intranets or even the "Internet" or an Internet. An embodiment could be to include a connection to the public "Internet", so that a User Apparatus (102) can connect via any network provider which provides access to the Internet, whereby connecting a User Apparatus (102) to a Content Control System (100). A Communication Network (101) is primarily responsible for facilitating an electronic communication connection between a plurality of Content Control System (100) and a plurality of User Apparatus (102). A Communication Network (101) could also contain various technologies, or "intelligence" to enhance data routing and switching, by way of reflectors,

multicasting, etc, to allow more efficient use of a Communication Network (101) Bandwidth, economies of scale, or some other economic or bandwidth benefit. A Communication Network (101) can connect a User Apparatus (102) via various possible interface(s) (104), which can include, but not be limited to, a dial-up  
5 modem, Ethernet, ISDN, DSL, T1, DS3, ATM, Cable, Wireless, SONET, Satellite, Frame-Relay, Router, Switch, or many other network interface or connection types that may be or become available.

In a preferred embodiment, a very high bandwidth connection to the "Internet" is made available by a Communication Network (101), with the option  
10 of supporting private networks to handle the high amount of bandwidth that could potentially be needed for digital content delivery. It is also recommended that the Communication Network (101) have the ability to use custom, or commercially available reflector or multicasting technology to reduce backbone or local bandwidth use. In this embodiment, TCP-IP would be the protocol of choice for its  
15 ability to work over the traditional "Internet"; however, it should not be limited to TCP-IP.

Another preferred embodiment could be to have a plurality of Content Control System (100) directly connected to local dial-up or other network connections, which could eliminate all "backbone" traffic and delay.

20 User Apparatus (102a, 102b) (102) are electrical devices capable of receiving an electrical or optical signal, and further processing such signal to provide audio, video and/or data processing capabilities or output. Such User Apparatus (102) can be a Computer, an embedded electrical device, a cable or other set-top-box, a consumer electronics device, a home appliance, a hand-held  
25 device, a cellular or wireless device, a phone, or any other device as described above.

A User Apparatus (102) usually will have the basic functionality to connect to a plurality of Communications Network (101) through a plurality of network interfaces, send and/or receive control and content information between a Content  
30 Control System (100), which can include, but not be limited or inclusive to, user

authentication, media selection, order processing, setting triggers, content navigation and/or information exchange. Once a Communications Network (101) connection is made, a User Apparatus (102) could also have the functionality to either playback audio content, and/or playback video content, and/or playback data content in a form suitable for each of the content types, which could be (1) a speaker system, (2) a digital or analog output(s) to a plurality of external audio device, (3) a Video Display system, (4) a digital or analog output(s) to a plurality of visual display devices, including, but not limited to, TV, computer monitor, or LCD display system, (5) a digital or analog electrical interface to other equipment. Added functionality to a User Apparatus (102) could include security or conditional access systems, such as smart-cards, or protected flash ROM systems or memory cards, a wired or wireless control panel, a display system for set-up, configuration, and/or user operation, which could have touch screen functionality, among many other options that could be created to interact with the features of this embodiment.

A User Apparatus (102) could also contain the features of a computer system, of any type with the appropriate hardware and/or software in place to handle some or all of the User Apparatus functions as described herein.

A Content Control System (100) gains its initial usefulness by having audio, video or data information, available for a User Apparatus (102). Such information can be retrieved from various internal and external systems, including a plurality of Real-Time System (103a, 103b)(103), as well as a plurality of Fixed-Store System (104a, 104b)(104).

A Real-Time System (103) can be a plurality of real-time encoded signals, such as those encoded from a Radio Station signal, or perhaps a live event, such as a concert, or presidential speech. A Real-Time System (103) is capable of audio, video and data encoding, and can be used in common or proprietary protocols or CODECS (coder - decoder), including, but not limited to, MPEG1, MPEG2 AC-3, H.323, AVI, ASF, RSTP, etc... encoded streams are provided to the Content Control System (100) which then has processes to manage and distribute upon

request the encoded information. Further, a Real-Time System (103) stream can be stored for later playback at the same time as it is streamed live, and thus could be given a Media Locator ID as will be discussed below. An embodiment of this encoder could be an implementation of a technology made available from the University of Illinois and a Company named VOSAIC, LLC. Although it is not necessary, any encoder can be used, such as those from Real-Networks, like the Real-Audio, Real-Video encoders, or Microsoft Netshow type systems.

A Fixed-Store System (104) can be a plurality of various systems that give access to CD-ROM jukeboxes, which contain audio, video or data content data files, or could be a plurality of any other mass storage device, including, but not limited to, hard-drives, Tapes, DVDs. A plurality of Fixed-Store System (104) could be used to store an unlimited amount of content, and could be connected to several type systems to expand storage capabilities as needed or at any time. Content provided to a Fixed-Store system (104) can be pre-encoded in any number of formats, or can be entered in raw form, where an encoding process will convert such content to a digital format and then stored for later retrieval.

A first step for using the system shown in Figure 8 would be to put at least one Content Control System (100) in place (to be defined in Figure 9.).

A next step would be to connect said Content Control System (100) with a Communication Network (101). Such connection could be made to the "Internet", whereby giving potential access to a Content Control System (100) by all "Internet" connected devices. Lets assume that a connection is made to a plurality of Content Control System (100) by at least one DS-3 (again, not limited or restricted).

A next step would be to create at least one User Apparatus (102) (to be defined in Figure 12, with an embodiment in Figure 15).

A next step would be to connect said User Apparatus (102) with a Communication Network (101). Such connection could be made to the "Internet", whereby giving access to a Content Control System (100). One embodiment may provide access via a dial-up connection for audio, whereby a better method for



high quality video may be a cable modem, or some other higher bandwidth connection (again, not limited or restricted).

A final step would be to add fixed-store content, or set-up steamed content to a Content Control System (100). This could be as simple a one audio streamed  
5 feed, or one digitally stored copy of a song, album or some other audio content (again, not limited to type or size of content (some embodiments are described in Figures 13 and 14).

Figure 9 shows an embodiment of a Content Control System (100). A plurality of Content Control Systems (100) can be made of a plurality of  
10 computers, workstations, mini or mainframes or any other type of computer system available. A Control Module (200) can be part of a Content Control System, and can be a plurality of computers, in multiples, it could be distributed possibly for redundancy, network load, or for any other reason. An embodiment of a Control Module (200) could be a Microsoft NT server, running a World Wide  
15 Web Server, combined with CGI, custom applications or Active Server Pages (ASP) to handle User Apparatus (102) requests, and provide responses and data, or provide the necessary information for a User Apparatus (102) to get the needed or requested information. Further, the Control Module (200) would have SQL database connection capabilities for information storage and retrieval, in this  
20 embodiment, the connection would be available with the SQL Server (205).

The Control Module (200) could be set up with Active Server Pages, that read HTML (FORM) tags and parameters (such as POST) following a HTTP protocol to communicate high level commands with a plurality of User Apparatus (102). An example may be a log-in process whereby a User Apparatus send a form  
25 through an HTTP protocol for a Control Module (200) to receive a User name and Password for authentication. It would then be the job of a Control Module (200) to process the appropriate ASP script, and send denial or authentication information back and fourth. This type of Question, response communication could be implemented for all aspects of User Apparatus (102) to Content Control System  
30 (100) type communications, although it is not necessary.

Such User Apparatus (102) Request/Response communication protocol could include a subset or superset, but not be limited to:

(1) Log-In, whereby the User Apparatus (102) sends [USER=username, PASS=password, IP=ip\_address, PORT=listening\_Port] information and the server responds with success or failure. Upon login, an embodiment of a server script could be to make a session, which records IP address (Internet Protocol) for use by any and all systems or sub systems within a Content Control System (100).

(2) Get-Content, whereby an embodiment of the User Apparatus (102) can send [PLAYMODE=[AM | FM | TV | AUDIO | DATA | AUDIO\_TRIAL | TV\_TRIAL | AUDIORECORD | VIDEORECORD], NAME=selection, ZONE=selection, FREQ=selection, THEME=selection, GLOBALID=catalog\_number, ML\_ID=selection], or other definable play modes, or parameters that can then be programmed with server scripts to execute commands, or provide responses. Each of these interactions will have different processing needs, but all will return one response or another for use by a User Apparatus (102). In an embodiment, [PLAYMODE=FM, ZONE=?] May ask the Control Module (200) to return all zones available for PlayMode FM. Another example may be a User Apparatus (102) sending [PLAYMODE=AUDIO, ML\_ID=1230x23], whereby this maybe a pointer to song "With or Without You" by the Artist U2, in which case the Control Module (200) could send back information needed to begin a audio stream with the selected content. In the later example, the ML\_ID would have probably been sent to the User Apparatus (102) in a previous selection command of some kind.

(3) Trigger, Whereby an embodiment of a communication protocol could sends [USER=username, PASS=password, IP=ip\_address, TRIGGER=[FIND\_SELECTION | WAIT\_SELECTION | RESPOND], PARAMETER=response\_string, ML\_ID=selection, SERVICEID=service\_id]. In this example, a command could be sent to the Control Module (200) such as [USER=username, PASS=password, IP=ip\_address, TRIGGER=FIND\_SELECTION, ML\_ID=1230x23], whereby the Control Module

(200) would update the necessary databases, so that a trigger monitor would see the request. Another example might be [USER=username, PASS=password, IP=ip\_address, TRIGGER=RESPONSE, PARAMETER=3, SERVICEID=2032], whereby maybe there was a vendor or Content Control System (100) server trigger, assigned a service ID of 2032, which requested a response from 1 through 9 for a question, whereby a user of a User Apparatus (102) entered the number 3.

(4) Setup, whereby an embodiment of a communication protocol could send [SERIALNUMBER=hardware\_sn, MAKE=equipment\_make, MODEL=equipment\_model, INTERFACE=[ MODEM | ETHERNET | DIGITAL], SERVICEID=service\_id, VERSION=software\_version, TYPE=[AUDIO | VIDEO | BOTH | DATA | ALL], BANDWIDTH=[ LOW | 144 | 288 | 336 | 56K | 64K | 128K | 256K | 1.5M | HIGH], DECODETYPE=[REAL | H323 | NETSHOW | GSM | MPEG | AVI, ASF, ALL]], or any other options that may be needed based on an embodiment.

(5) Purchase content, whereby an embodiment of a communication protocol could send [USER=username, PASS=password, BUYCODE=smart\_card\_code, ML\_ID=selection, DELIVERY=[NEXTDAY | SECONDDAY | LEASTCOST]], whereby the Control Module (200) may end back a confirmation code for display or printout by a User Apparatus (102).

(6) Send demographics, whereby an embodiment of a communication protocol could send [USER=username, PASS=password, ACTIONCODE=[CHANGECHANNEL | CHANGECONTENT | TRIALED | POWERON | POWEROFF | PURCHASE], STARTIME=start\_time, ENDTIME=end\_time, STARTDATE=start\_date, ENDDATE=end\_date], whereby a Control Module (200) could update databases, send alerts, notify customer service systems, or any other action as potentially programmed.

(7) Get information, whereby an embodiment of a communication protocol could send [USER=username, PASS=password, GETCODE=[NEWINFO | CONTENT | MESSAGE | KEYS | DESCRIPTOR | LOCATORS]], whereby a Control Module (200) could update databases, send

alerts, notify customer service systems, or any other action as potentially programmed.

5 In an embodiment of a communication protocol between a Control Module (200) portion of a Content Control System (100), as described above, each query to a Control Module (200) by a User Apparatus (102), would produce an action by a Control Module (200) which could be a response back to a User Apparatus (102), or some action internal or between a plurality of Content Control System (100) or modules within a Content Control System (100).

10 Just as an embodiment for communication by a User Apparatus (102) to a Control Module (200), as described above, can be made, a Control Module (200) could also initiate a query to a User Apparatus (102).

Such Control Module (200) Request/Response communication protocol could include a subset or superset, but not be limited to:

15 (1) request information, whereby an embodiment of a communication protocol could send [SERVER=server\_ip\_address, ACTION=QUESTION, QUESTION=[ HARDWAREINFO | USERINFO | ACTIONLOG | PORT | BANDWIDTHLOG | SECURITYINFO], SERVICEID=assigned\_service\_id], and a User Apparatus (102) could respond with the requested information. An example might be [SERVER=123.45.678.90, QUESTION=HARDWAREINFO], whereby a User Apparatus (200) could send back the appropriate response, which in this case would be information pertaining to the hardware configuration of a User Apparatus (102).

25 (2) Trigger request, whereby an embodiment of a communication protocol could send [SERVER=server\_ip\_address, ACTION=TRIGGER, TRIGGERFROM=[USER | VENDOR | SERVER], TRIGGERACTION=[FIND | REQUEST | RESPONSE], SERVICEID=assigned\_service\_id, ML\_ID=ml\_id, PARAMETER=trigger\_parameter\_string]. In this embodiment, an example might be that a User Apparatus (102) had previously issued a trigger to request a radio

30

station playing "With or Without You" by the Artist "U2", upon a Service Control Module (202) matching criteria, a command is sent to the proper User Apparatus (102) from a Service Control Module (202) within a Content Control System (100) a command such as [SERVER=123.45.678.90, ACTION=TRIGGER, TRIGGERACTION=RESPONSE, SERVICEID=1234, ML\_ID=130t1r, PARAMETER=PLAY], in which case, a User Apparatus (102) could select the content ML\_ID and send a play action command, perhaps in this case the ML\_ID points to a radio station playing the requested song.

As described above, the Control Module (200) should thus be able to handle request/response communication from a User Apparatus (102), and should also be able to communicate with service modules and/or applications and/or databases to accomplish the proposed processes. The Control Module (200) in this embodiment can be implemented by a developer skilled in Microsoft Active Server Pages, Microsoft World Wide Web Servers, WindowsNT, TCP-IP, CGI and other web scripting, and HTTP and HTML development.

A Content Management System (201) of an embodiment is a plurality of database management software applications, client applications, and service applications, of any kind, capable of connecting to a Database Management Module (205). Applications can be developed to handle many issues, including customer service, operational activities, database builders, or master data entry locations, management systems for adding content, or encoding and decoding content in a Content Control System (100).

A Content Management System (201) is a plurality of applications that are capable of database manipulation, management. A Content Management System (201) is in an embodiment to maintain and administer system and content information, storage and operational manipulation. An embodiment of these applications could be made by a Microsoft Access program that is connected to the databases, as managed by a Database Management Module (205). Systems could be put in place to include, but not limited to, (1) User Apparatus Management, (2) billing, (3) order processing, (4) Content management, (5)

Content configuration, (6) batch entry or content creation, (7) defining and configuring all forms of content, including "virtual" channels, etc..., (8) customer service, (9) security, and much more. Such systems would conform to the rules and criteria established in the database design scheme(s) as implemented in an embodiment. For instance, users of an application could enter media locator information into the system, making potential access of this content for all User Apparatus (102). The applications as contained in a Content Management System (201) as described in an embodiment could be developed by an application developer knowledgeable in Microsoft Access programming and Microsoft SQL Server Programming.

A Service Control Module (202) as shown in an embodiment would be used to handle various forms of processing not managed by a Control Module (200). A Service Control Module (202) is a plurality of systems with associated custom programs, or commercially available software capable of communicating with a database system, as that of a Database Management Module (205), and a Control Module (200).

A Service Control Module (202) could perform tasks, including, but not limited to, (1) Trigger detection and coordination systems, (2) software versioning, (3) order processing and fulfillment operations, (4) message and communication tasks between a plurality of Content Control Systems (100) and a plurality of User Apparatus (102) any combination thereof, (5) "virtual" channel control and "on-air" sequencing of content, ads, etc..., (6) controlling and compiling demographics, (7) interactive signaling, (8) smart alerts, (9) condition monitoring, (10) Content control, (11) initiating content transfer and coordination, and much more.

A Service Control Module (202) should have capabilities to communicate with a User Apparatus (102) through a Control Module (200), or directly, if given the proper address and port information, as would be defined in a communication protocol and data storage and management scheme of an embodiment.

An example service controlled by a Service Control Module (202) could be a trigger monitor, whereby this service would constantly analyze data in a Database Management Module (205) to look for trigger conditions being met (such as a requested song being played on a particular radio station [use playlist database]). Such a mechanism could use the information stored, match the trigger User Apparatus (102) with the content stream, and execute the procedures necessary to send the trigger message to such User Apparatus (102).

A Service Control Module (202) should be able to manage individual tasks, and potentially manage individual User Apparatus services. One embodiment could use a database to store sessions that could include service ids, user names, and functions being performed, along with other necessary information to communicate back and fourth. Additionally, functionality may be added that would allow a Control Module (200) to send information (such as a computer address) to a User Apparatus (102) so that direct communication can be handled by a Service Control Module (202).

A preferred embodiment of a Service Control Module (202) would be an implementation that was database driven, whereby one Service Control Module (202) could take over the functions of another Service Control Module (202) in real-time should failure occur, or performance decrease, or for any other reason as defined in an embodiment.

Development of the various applications which could be provided from a plurality of Service Control Module (202) as defined in an embodiment could be developed by any application developer with knowledge of WindowsNT, Microsoft Access, Microsoft SQL Server, Microsoft Active Server Pages, Microsoft WWW Server (IIS), and TCP-IP.

A Network Interconnection (203) can be any electrical device capable of interconnecting the various systems and modules as defined in an embodiment of a Content Control system (100), such that communication and networking capabilities are in place.

An embodiment of a Network Interconnection (203) could be as simple as an Ethernet hub, with enough ports available to connect the individual systems of a Content Control System (100). Further, connections could be made available for communication outside a local network, including connections to Routers or  
5 Switches, Bridges, or any other network device capable of connecting, or extending a network.

In an embodiment of a Content Control System (100), it is possible to connect all WindowsNT systems using an Ethernet 10/100 adapter to a central Hub or switch. This switch could then be connected to another switch, or to a  
10 gateway, or router for additional connections, or access to outside networks.

A Content Stream Module (204) is made of a plurality of computer systems, each capable of communication with a plurality of systems and modules of a plurality of a Content Control System (100). A Content Stream Module (204) is capable of direct communication with a plurality of User Apparatus for the  
15 purpose of providing communication to deliver or receive a plurality of Digital Audio, Digital Video, or Data content.

In an embodiment, a Service Control Module (202) service, or a Control Module (100) service could send message to a User Apparatus (102) which included a Content Stream Module (204) server address, a pointer to the content  
20 requested, security information, and additional port information. This could then initiate a content delivery to a User Apparatus from a Content Stream Module (204). For instance, a Content Stream Module (204) could take a pointer to file "album\u20121230x23" which could point to a song "With or Without You" by the artist "U2". In such a case, an audio streaming connection is made, and the content  
25 is sent to a User Apparatus (102) for processing.

An embodiment of a Content Stream Module (204) could be an off-the-shelf server, such as a Real-Networks implementation (Real-Server), or an implementation like VOSAIC, LLC, or a custom designed streaming mechanism.

Communication between a Content Stream Module (204) and a Control  
30 Module (200) and/or a Service Control Module (202) should be implemented in an



embodiment so that various services could terminate, or otherwise manipulate a connection between a Content Stream Module (204) and a User Apparatus (102).

An embodiment of a Database Management Module (205) could be a plurality of WindowsNT computers running Microsoft SQL Server software. The responsibility of a Database Management Module (205) would be to manage all database access, and system level functions needed, including communication without external systems and/or modules.

In an embodiment of a Database Management Module (205), access would be made available to a plurality of Control Module (200), a plurality of a Content Management System (201), a plurality of Service Control Module (202), and a plurality of Content Stream Module (204).

Data contained in an embodiment of a Database Management Module (205) would be use for all the systems and modules described above to access all needed data or content to perform their individual tasks or functions. A description of an embodiment to a simple database table structure is defined in Figures 10 and 11.

Note that any and all plurality of systems and/or modules that make up a plurality of Content Control System (100), could be a plurality of "farms" of servers, or spread over a plurality of physical machines, based on design, bandwidth, or processing speed and capabilities of individual machines. Again, this embodiment is brief and simple, is not meant to limit to scope or spirit of this invention.

The network of Figure 9 operates with a first step that could be to set up a Control Module (200), which could be a WindowsNT server running the IIS (world wide web server) with Active Server Page (ASP) extensions and all other needed packs or modules to implement WWW server and ASP functionality, and with database access connectivity installed for Microsoft SQL Server, a network interface card (such as Ethernet), appropriate network drivers, and a TCP-IP stack configured properly.

Another step would be to set up a Content Management System (201), which could be a WindowsNT server with database access connectivity installed for Microsoft SQL Server, a network interface card (such as Ethernet), appropriate network drivers, and a TCP-IP stack configured properly.

5 Another step would be to set up a Service Control Module (202), which could be a WindowsNT server with database access connectivity installed for Microsoft SQL Server, a network interface card (such as Ethernet), appropriate network drivers, and a TCP-IP stack configured properly.

10 Another step would be to set up a Database Management Module (205), which could be a WindowsNT server Microsoft SQL Server installed, a network interface card (such as Ethernet), appropriate network drivers, and a TCP-IP stack configured properly.

15 Another step would be to set up a Content Stream Module, which could be a WindowsNT server with database access connectivity installed for Microsoft SQL Server, a network interface card (such as Ethernet), appropriate network drivers, and a TCP-IP stack configured properly.

Another step would be to configure a chosen media-streaming server, such as one from Real-Networks (Real-Server), or VOSAIC (mediaserver) type technology. Configure as appropriate.

20 Another step would be to develop a database scheme on the Database Management Module (205), such as an embodiment defined in Figures 10 and 11.

Another step would be to develop management applications to be used by a plurality of Content Management System (201), to interface with the table scheme(s) designed and implemented on a Database Management Module (205).  
25 Such applications should produce varied functionality, but in an embodiment described here, should produce the functionality as described above for a Content Management System (201).

Another step would be to develop the needed monitoring, tracking and management applications for the Service Control Module (202). Such applications

should produce varied functionality, but in an embodiment described here, should produce the functionality as described above for a Service Control Module (202).

Another step would be to develop the needed ASP (script) files and URL pointer MAP to produce the needed Query/Response system as described above, and further enhanced for added functionality.

Another step would be to integrate all of the functionality and systems and modules together on one network system so they can communicate.

Another step would be to connect the network created in the previous step, to an outside network, such as connection to a Communication Network (101), for access by a plurality of User Apparatus (102).

The steps provided in this section of this embodiment, with the description as outlined above and materials contained herein, should give any skilled programmer, with knowledge of open systems such as Microsoft WindowsNT, Microsoft Access, Microsoft SQL Server, and TCP-IP programming and development and Microsoft World Wide Web Server (IIS).

Figure 10 describes an embodiment of a Database Management Module (205) table Scheme. This Scheme is used by applications within a Content Control System (100), to manage, track, define, describe, manipulate, or otherwise store, modify or create information used. The tables defined in this Figure 10 should be created on a database server as defined in a Database Management Module (205).

In an embodiment, several individual tables are created to manage data, including, Content, Virtual Channels, Media Locator, Theme, Content Descriptor, Zone, Playlist, Demographics, Orders, Triggers, Users, User Apparatus, Security, License, Vendor. Although these are defined, this is not meant to limit the scope, capabilities, or spirit of this embodiment.

The relationships of the tables in this embodiment define the basic interaction between the data, and its uses. The main entry point for Digital Audio, Digital Video, or Digital Data content is the Media Locator table (303).

The Media Locator table (303) defines an entry point into every content asset available through a Content Control System (100). Records are created in

this table for each and every definable or accessible content item. For instance, every radio station, television station, album, song within an album, audio-book, virtual channel, data channel, video trailer, audio trailer, etc... has its own unique Media Locator (303) record. For instance, an album such as "The Joshua Tree", by the Artist "U2" contains the song "With or Without You". Therefore, two separate records could be found in a Media Locator (303), one for the album, and one for the individual song. As with an album, a movie (vhs,dvd), could also contain multiple records, perhaps one for a full-length version, and one for a trailer version. Another example would be for radio, where a unique record would exist for every radio station capable of broadcast through a Content Control System (100). Media Locator (303) records should contain a mechanism for other Media Locator (303) references. Such as the example above, a song should be able to point to its owner (the album), and should further point to a Media Locator (303) record of a trial version of the content (assuming this content is available).

Connected to a Media Locator table (303) record is a pointer to a Content Descriptor (304). A Content Descriptor (304) table is used to store records that define data specific to the content itself. For instance, a Content Descriptor (304) record would be connected to a Media Locator (303) for the song "With or Without You" as described above. This record could contain information related to the writers, artists, publishers, length of time, logo, and title. If a Content Descriptor (304) record pertains to a radio or television station, it may contain a Frequency number, a corporate logo, a tag name, and a region that the actual station is located and/or broadcast from.

Connected to a Content Descriptor (304) is a Zone table (314). Each record is associated with a unique zone/sub-zone descriptor. For a Radio or Television Station, it may be a geographic location, for instance, Zone could be "New York", and Sub-Zone could be "Metro", whereby indicating a Metro New York broadcast. Perhaps an audio album, could point to a zone of "Audio" and a sub-zone of "CD", of perhaps an audio book could point to a zone of "Audio" and a sub-zone of

"Book". The Zone (314) records are a dynamic list of categories to define regions, or zones of particular content.

Connected to a Media Locator table (303) is a Themes Table (302). The Theme (302) records define categories in which a Media Locator (303) record is matched with. This embodiment allows for one theme per media record, although other embodiments may associate multiple Themes (302) records with a Media Locator (303) record. Examples might be for a radio station to have a Theme (302) record of "Rock", or "Sports Talk", an album may have a Theme (302) record of "New Age", "Blues", a movie may have a Theme of "Drama", "Comedy", etc...

Connected to a Media Locator table (303) is a Play-List Table (305). A Play-List (305) record contains information that associates a "broadcast" channel, with a Digital Audio, Digital Video, or data item. For instance, a Play-List (305) record may have information that says there is a Media Locator (303) record that points to a radio station, which is going to play a song, which is defined by another pointer to a Media Locator (303) record. Further described, if a Media Locator (303) Record, #10, which is defined as a Radio Station (say "Z100"), and there is another Media Locator (303) record, #1230x23, which is defined as the song "With or Without You" by the Artist "U2", then a Play-List (305) record may say that: ["radio station #10 "Z100", will play the song #1230x23 "With or Without You" at 12:15pm on 1/2/99"]. A Play-List (305) record could also give the currently played radio selection by just providing the radio station Media Locator (303) record and a Media Locator (303) record for the song, without a start time or date.

Further, a Media Locator (303) record does not need to be a song, radio, television station, etc... It could be a Commercial that is playing. Perhaps an embodiment would give a User Apparatus (102) the ability to get more information on a currently playing advertisement on a Radio Station. This is possible because there is a Media Locator (303) record for that content to be selected. Using a Play-List (305) table, data could be provided to a User Apparatus (102), every time a Radio Station changes the content being played (from song to

song, or song to commercial, etc...) which would send a new Media Location (303) record ID pointing to the currently played selection. This is an important note, because this would allow a User Apparatus (102) to display a currently playing song on a Radio Station, or Commercial, and Further, could allow a user of a User Apparatus (102) to select trial mode, which could take the Play-List (305) record pointer, and select that content, maybe an album of the song being played. Many functions can be generated, including trigger controls from a Play-List Record (305).

Connected to a Media Locator table (303) record is a Virtual Channel (301) table. A Virtual Channel is a computer generated broadcast station for audio, video, or data content. For instance, a Virtual Radio Station can be set up to broadcast "Blues" music only, with a commercial inserted every three songs. The music can be selected randomly, or by some sort or play criteria defined elsewhere. Further, commercials could be controlled to a point where an algorithm is used that takes all the User demographics from the User Apparatus (102) that are "tuned" into the virtual channel, to give the most appropriate commercial. This is just one example of many that individual embodiments could produce.

Just as all other forms of content, (radio, etc...) contain a Media Locator (303) record, so does a Virtual Channel. A Service Control Module (202) application could use this information to maintain, and/or operate the virtual channel.

A Content (300) table is pointed to by Media Locator table (303) record. A Content (300) record contains the information needed for location of a physical media content digital file. This can be on any storage system, subsystem and the like. This embodiment simply points to a storage server (can be a URL, address, etc...) and a physical file name.

A User (309) table contains various information gathered about an actual user of a User Apparatus (102). For instance, this table can store billing and shipping address information, credit card numbers, user name and password, the type of equipment the user is using, and even the content they are currently

connected to. More information can be stored, and this embodiment is not meant to limit the scope or spirit of this embodiment.

Connected to a User (309) table is a User Apparatus (310) Table. A User Apparatus (310) record contains the type, make and model, software version,  
5 decode capabilities, hardware serial numbers, and other associated information with regard to an actual User Apparatus (102). Users can use more than one Apparatus, but use only one at a time in this embodiment. It will be clear to see that in this embodiment, a User (309) record could change what User Apparatus (310) record it points too as a User logs in from one device to another.

10 Connected to a User (309) table is an Orders (307) Table. An Orders (307) record can store user information, the content the user purchased, and the time and date of the transaction. As envisioned in an embodiment, a User could have selected an album, and initiated a purchase of that album in CD format. Such Orders (307) record would then contain the Media Locator (303) record pointer for  
15 the album purchased, plus date, time, price, type of shipping, and other order information. This database could be used by a Service Control Module (202) application to determine all unfulfilled orders, and execute the proper procedures to have a CD shipped to the User.

Connected to a User (309) table is a Security (311) Table. A Security (311)  
20 record is created for all User Apparatus (102) and all User (309) records. This information includes tracking of hardware, smart cards, passwords and other information needed for advanced security monitoring and control. Such information could be conditional access information, User ID, Password, Smart-Card info, Network Addresses, permissions, and other useful information for User  
25 Apparatus (102) and/or User restrictions and/or permissions.

Connected to a User (309) table is a Demographic (306) Table. This  
Demographic (306) table is capable of storing various actions that are initiated on  
a User Apparatus (102). For instance, a User might change from Radio Channel #1  
to Radio Channel #2. This change could be stored in a Demographic (306) record  
30 for use by a statistical analysis program, or whatever other purposes could be

created. This table also points to a Media Locator (303) record, to show what content was turned on, or turned off.

A Vendor (313) table contains information related to authentication of Companies with rights to update the system and/or license and/or trigger  
5 databases. This functionality, for instance, would allow a record retail location to sell a Tape, or CD, then enter the information into the License Database (201), given the proper userID and password, to allow the customer's User Apparatus (102) to allow on-demand access, and other functionality associated with such license rights. Another example of this embodiment would allow a Radio Station  
10 (a vendor) DJ to ask a question, using a trigger, and allow users to respond (the first to respond wins..., statistic gathering, etc...).

Full audit records would be kept of all actions that vendors make. In this embodiment, it is possible for a Content Control System (100) to automatically charge a Vendor for every license entry they make in the system. For instance, a  
15 record vendor could have sold a CD and was requested by a User to enter that license into the system for use on their User Apparatus (102), thereby generating a commission for the Content Control System (100) owner or operator.

A License (312) table contains records that associate Users with allowable (licensed) content to hear or see. For instance, if a user were to purchase a CD, a  
20 license record would be generated to give playback rights, and would associate the appropriate Media Locator (303) pointer to the User (309) pointer. License information could also contain a start time, end time, and various other method of access and restriction controls, based on the type of license purchased, or given.

A Triggers (308) table contains records related to User Apparatus (102),  
25 Content Control System (100) and/or Vendor created triggers. This information relates Users, with specific content, or Play-List (305) queries, which are monitored by application in a Service Control Module (202). Trigger (308) records contain information specific to the type of Trigger it represents. Further a Trigger (308) table can be access by many application doing many different things.



For using the structure of Figure 10, a first step would be to create the needed tables using the fields defined in Figure 11.

Another step would be to insure referential integrated as defined in Figure 10, and by insuring proper keys and relationships as can be simply seen with connecting lines on the diagram, combined with the logic of the functions of each of the tables, as described above.

Figure 11 describes an embodiment of a table structure defined in a Database Management Module (205) scheme(s), this Scheme is used by applications within a Content Control System (100), to manage, track, define, describe, manipulate, or otherwise store, modify or create information used. The fields of the tables defined in this Figure should be created on a database server as defined in a Database Management Module (205).

A Media Locator (303) record is made of several fields, of which some in this embodiment include:

(1) A ML\_ID (400) is unique KEY RECORD for each record in this table. This id is used by many tables to reference a particular row (record) of this Media Locator (303) table.

(2) A Content\_type (401) [AM | FM | TV | AUDIO | VIDEO | DATA | VIRTUALAUDIO | VIRTUALVIDEO | VIRTUALDATA] this field is used to define the type of content this record defines, as seen by some of the options which can be available.

(3) A Global\_ID (402) is a reference to a universal content code if one exists. For instance, books, magazines, etc... contain ISBN numbers that are unique for every item available. Audio content can have a similar code, as well as video. These references can be used to select albums, videos or other content by entities not familiar, or without access to ML\_ID's, to allow selection.

(4) DESCRIPTOR\_ID (403) is a reference to a record within a Content Descriptor (304).

(5) Trial\_ML\_ID (404) is a pointer to another Media Locator (303) record that contains content that a user can hear or see if they are not licensed to

this Media Locator Record. If this field is not populated, then there is no content to preview, or this content can not be trialed.

(6) License\_Req (405) [YES | NO | CODE] is a field that indicates what type of license, if any, is required. If 'YES', then any license to this content will do for access.

(7) ML\_ID\_TOP (406) is a pointer to another Media Locator (303) record that contains a parent content item. For instance, a song may contain a pointer to its album. A sub-topic content may point to its topic.

(8) CONTENT\_PTR (408) is a pointer to a Content (300) record which identifies the location of a streaming file defined by the Media Locator Record (303).

(9) THEME\_Ids (409) is a pointer to a Theme (302) record.

A Content Descriptor (304) record is made of several fields, of which some in this embodiment include:

(1) DESCRIPTOR\_ID (410) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Content Descriptor (304) table.

(2) ZONE\_ID (411) is a pointer to a record within a Zone (314) table.

(3) Freq.# (412) is a field available for a Radio Station, or other content descriptor record that has a frequency associated with it.

(4) Tag Name (413) is a human understandable definition of the content described. For instance, a Radio station name, an album name, a song title, a television broadcast, etc...

(5) Info (414) can contain a complete description of content creation times, places, dates, authors, writers, producers, etc...

A Zone (314) record is made of several fields, of which some in this embodiment include:

(1) ZONE\_ID (417) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Zone (314) table.

(2) Zone1 (418) defines a Zone main topic, which could be "New York" as an example of a regional zone main topic heading.

(3) Zone2 (419) defines a Zone sub-topic, which could be "Metro" as an example of a regional zone sub-topic heading.

5 A Theme (302) record is made of several fields, of which some in this embodiment include:

(1) THEME\_ID (420) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Theme (302) table.

10 (2) Theme\_type (421) [AM | FM | TV | AUDIO | VIDEO | DATA | VIRTUALAUDIO | VIRTUALVIDEO], defines a code for a sub-category, such as "FM" for FM radio theme.

(3) Description (422) defines the theme type, such as "DRAMA", or "ROCK", or "BLUES", etc...

15 A Vendor (313) record is made of several fields, of which some in this embodiment include:

(1) VENDOR\_ID (423) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Vendor (313) table.

20 (2) Name (424) is a userid and name of the vendor.

(3) Password (425) is a password for the vendor.

A Virtual Channel (301) record is made of several fields, of which some in this embodiment include:

25 (1) VIRTUAL\_ID (426) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Virtual Channel (301) table.

(2) A Content\_type (427) [VIRTUALAUDIO | VIRTUALVIDEO | VIRTUALDATA] this field is used to define the type of content this record defines, as seen by some of the options which can be available.

(3) ML\_ID (428) is a pointer to a Media Locator (303) record that defines this virtual channel.

(4) Style\_info (429) can be a group of parameters that define the style or functionality of this virtual channel.

5 A Security (311) record is made of several fields, of which some in this embodiment include:

(1) SECURE\_ID (430) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Security (311) table.

10 (2) USER\_ID (431) this field is a pointer to a User (309) record.

(3) HARDWARE\_SN (432) is the hardware serial number returned from a User Apparatus (102) for a User.

(4) SMARTCARD\_ID (433) is the Smart-Card ID of a Smart Card inserted in a User Apparatus (102), if applicable.

15 A User Apparatus (310) record is made of several fields, of which some in this embodiment include:

(1) APPARATUS\_ID (434) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this User Apparatus (310) table.

20 (2) Type (435) defines the Make of hardware.

(3) DecodeType (436) [AUDIO | VIDEO | BOTH | DATA | ALL], defines the content this device can accept.

(4) Soft\_Version (437) is the version of software running in this device.

(5) Model (438) is the model of the device.

25 A Play-List (305) record is made of several fields, of which some in this embodiment include:

(1) ML\_ID (439) is a pointer to a Media Locator (303) record, and describes the transmitting "broadcast" entity (ie. Pointer to a Radio, Virtual or television station, etc...).

(2) Content\_ML\_ID (440) is a pointer to a Media Locator (303) record, and describes the content to be, or being played currently. If a Start\_time field is empty, then it is currently playing.

(3) Start\_Date (441) defines the date that this play lit record pertains to. This field should be left blank if the date is [Today], or is [every day]. A blank field defines the current date to the system.

(4) Start\_time (442) defines a start time, for a date given in Start\_date. If this field is empty, then it is a currently playing Play-List record.

(5) Model (438) is the model of the device.

A Content (300) record is made of several fields, of which some in this embodiment include:

(1) CONTENT\_PTR (480) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Content (300) table.

(2) Fserver (481) defines the file server that contains the content media file. This field can be in the form of IP Address, or URL.

(3) FLocation (482) defines the actual file name that contains the content media data. This field can be in the form of IP Address, or URL.

(4) LServer (483) defines the file server that contains the logo file. This field can be in the form of IP Address, or URL.

(5) LLocation (484) defines the actual file name that contains the Logo image data. This field can be in the form of IP Address, or URL.

A License (312) record is made of several fields, of which some in this embodiment include:

(1) LICENSE\_ID (448) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this License (312) table.

(2) USER\_ID (449) is a pointer to a User (309) record that defines the Owner of this license Record.

(3) ML\_ID (450) is a pointer to a Media Locator (303) record that defines the content being licensed in this record.

(4) Start\_date (451) is the date upon which this license goes into effect.

5 (5) Start\_time (452) is the time upon which this license goes into effect.

(6) Expire\_Date (453) is the date upon which the license is to expire. If left empty, this license will not expire.

10 (7) Access\_type (454) [FULL | G | PG | R], is the range of content screening, or version of content based on a standard rating system.

A User (309) record is made of several fields, of which some in this embodiment include:

15 (1) USER\_ID (455) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this User (309) table.

(2) Name (456) defines the name of the user this record pertains to.

(3) Password (457) defines the password as assigned by this user. This field can be encrypted.

20 (4) Address\_info (458) contains the information pertaining to mailing address, billing address, phone, etc...

(5) Billing\_info (459) contains the information pertaining to billing, including Credit Card #, expiration dates, debit accounts, etc...

25 (6) ML\_ID\_in\_use (460) contains a pointer to a currently selected Media Locator (303) Record (content) being used. This field should be populated for all users which are logged in through a User Apparatus (102), and are engaged in a stream of content. This field could be used by an application on a Service Control Module (202) as an example. For instance, a trigger application maybe looking for all users listening to radio station (Z100), as defined by a particular ML\_ID.

(7) APPARATUS\_ID (461) defines the User Apparatus (102) that is currently being, or last used by a user, and points to a record in a User Apparatus Type (310) record.

A Triggers (308) record is made of several fields, of which some in this embodiment include:

(1) TRIGGER\_ID (462) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Triggers (308) table.

(2) Type (463) [U | V | S], defines the type of trigger defined in this record as initiated by a User, Vendor or a Content Control Server.

(3) USER\_ID (464) is a pointer to a User (309) record if this trigger is of type "U".

(4) VENDOR\_ID (465) is a pointer to a Vendor (313) record if this trigger is of type "V".

(5) ML\_ID (466) is a pointer to a Media Locator (303) record that defines the content to be scanned, or communicated with as it pertains to the action of this trigger.

(6) Action (467) [FIND | REQUEST | RESPONSE] defines the type of trigger being executed. FIND could ask to find a media locator based on a particular request when available, REQUEST could send a question to a plurality of User Apparatus (102) or Content Control System (100), RESPONSE could send answers back to a REQUEST trigger.

(7) Service\_ID (468) is a Service Control Module (202) defined parameter, and should be read-only. This id allows for tracking actual logic of a trigger, and an application that is handling this particular trigger record. This field allows for an unlimited number and type of trigger applications, because a unique service\_id can be created for any and all possible interactions with a trigger, and an infinite number of ways. For instance, Service\_id could be assigned #1 for "find content playing and send to user apparatus", in which case a simple script or application monitors triggers for this, and so on. Proper service Ids would most

likely be found by a ASP script on a Control Module (200) as it reads a User Trigger and modifies this field, or could be updated by a Service Control Module (202) application that is handling a Vendor Trigger, etc...

5 A Orders (307) record is made of several fields, of which some in this embodiment include:

(1) ORDER\_ID (443) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Orders (307) table.

10 (2) USER\_ID (444) is a pointer to a User (309) record that defines the Owner of this Orders Record.

(3) Date (445) is the date of this order.

(4) Time (446) is the time of this order.

(5) ML\_ID (447) is the content being ordered in this record.

15 A Demographics (306) record is made of several fields, of which some in this embodiment include:

(1) DEMOGRAPHIC\_ID (472) is unique KEY RECORD for each record in this table. This id is used by other tables to reference a particular row (record) of this Demographics (306) table.

20 (2) USER\_ID (473) is a pointer to a User (309) record that defines the Owner of this Demographics Record.

(3) ML\_ID (474) is a pointer to a Media Locator (303) record that defines the content, if applicable used for this record.

(4) Start\_time (475) is the start time of this demographic log entry.

25 (5) Start\_date (476) is the start date of this demographic entry.

(6) end\_time (477) is the end time of this demographic log entry.

(7) end\_date (478) is the end date of this demographic entry.



(8) Code (479) [CHANGECHANNEL | CHANGECONTENT | TRIALED | POWERON | POWEROFF | PURCHASE], defines the demographic action being recorded in this record.

Figure 12 is an embodiment of a User Apparatus (102). What is described in this Figure 12 are the basic functional units for a typical User Apparatus (102) to be usable. Such functionality can exit purely in hardware, or could be a mix of hardware and software, or can be purely software.

In a plurality of User Apparatus (102) it is important to note that an unlimited number of embodiments are possible, and each individual embodiment can work if it communicates with a Content Control System (100).

In this embodiment of a User Apparatus, an electronic device would have a main processing center, in this case a Central Processor (502). A Central Processor (502) would be responsible for executing software instructions, and communicating with the various interfaces available for interfacing, processing and/or any other functions needed to become a useful User Apparatus (102). In this embodiment, a Central Processor (502) would load a stored program on a Flash memory (503) and begin execution. There is no limitation to the type of code, or processors that could be used to implement a User Apparatus, for instance, code can written in Java, C, Basic, Assembly, or any other language that is capable of running on a particular Central Processor that is used in an embodiment. Hence, it is obvious that there is no limitation on the types of Central Processors (502) that can be implemented in an embodiment.

Connected to a Central Processor (502) could be a User Control (501). A User Control (501) could be a keyboard, a panel of buttons, a wireless remote control, or signals coming from other electrical or optical interfaces that may be present. In an embodiment that is not a typical computer, such as a consumer electronic device, the User Control (501) is usually a combination of a button panel on the front of the device, and a wireless remote control (similar to that of a VCR, CD player, etc).

A Central Processor (502) will need software code and "drivers" available for each type of User Control (501) connected to allow for proper communication and data handling.

5 A Network Interface (500) is used by a User Apparatus (102) to connect to a Communication Network (101). Such interfaces could be a Modem, Ethernet, USB, 1394, or any other electrical or optical bus. In an embodiment as a non-pc device, there may be a Modem, Ethernet and (Firewire) 1394 interface for communication with telephone lines, cable modems, and other consumer electronic devices that use a (1394). There is no limit to the type or number in  
10 each User Apparatus (102a) as long as there is at least one.

A Central Processor (502) will need software code and "drivers" available for each type of Network Interface (500) connected to allow for proper communication and data handling.

15 A Memory / Program Store (503) can be made of several types of local memory. This embodiment would use Flash memory (re-programmable memory) to store program code and other parameters that may be changed from time to time. This would allow for software or feature upgrades without modification to the physical User Apparatus (102a). Buffer memory could be used for Central Processor (502) temporary storage, and or temporary data storage.

20 If an embodiment of a User Apparatus (102a) is to handle video, then most likely there will be a Visual Interface (504). A Visual Interface (504) could contain a plurality of input signals and a plurality of output signals. It is not necessary for a User Apparatus (102a) to handle video.

25 Examples of Visual Interface (504) inputs could be Composite and/or S-Video and/or USB and/or 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain a Composite, S-Video and 1394 interface, since these are the most common for analog and digital video at this time. A Visual Interface (504) would be made of a plurality of circuitry that would convert physical inputs into data streams usable by a Central Processor  
30 (502) and its helper circuitry if it exists.

Examples of Visual Interface (504) outputs could be Composite and/or S-Video and/or SVGA and/or 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain a Composite, S-Video and 1394 interface, since these are the most common for analog and digital video at this time. A Central Processor (502) could be connected to a plurality of circuitry that would convert data streams into data streams and/or signals usable by a Visual Interface (504) and its helper circuitry if it exists.

If an embodiment of a User Apparatus (102a) is to handle Audio, then most likely there will be a Audio Interface (505). A Audio Interface (505) could contain a plurality of input signals and a plurality of output signals. It is not necessary for a User Apparatus (102a) to handle audio.

Examples of Audio Interface (505) inputs could be RCA style Stereo Plugs, 1/4 and 1/8 inch jacks, USB, 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain a RCA style Left and Right, and 1/8 inch jacks, since these are the most common for analog audio inputs at this time. A Audio Interface (505) would be made of a plurality of circuitry that would convert physical inputs into data streams usable by a Central Processor (502) and its helper circuitry if it exists.

Examples of Audio Interface (505) outputs could be RCA Style Stereo plugs, 1/4 and 1/8 inch jacks, AC-3 digital, USB, 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain a RCA style Plugs, 1/4 inch jack and AC-3 digital interface, since these are the most common for analog and digital audio output at this time. A Central Processor (502) could be connected to a plurality of circuitry that would convert data streams into data streams and/or signals usable by a Audio Interface (505) and its helper circuitry if it exists.

If an embodiment of a User Apparatus (102a) is to handle external data input or output, then most likely there will be a Data Interface (506). A Data Interface (506) could contain a plurality of input signals and a plurality of output

signals. It is not necessary for a User Apparatus (102a) to handle external data input and output.

Examples of Data Interface (506) inputs could be USB, 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain a USB and/or 1394, since these interfaces are becoming the most common for digital multimedia inputs at this time. A Data Interface (506) would be made of a plurality of circuitry that would convert physical inputs into data streams usable by a Central Processor (502) and its helper circuitry if it exists.

Examples of Data Interface (506) outputs could be USB and/or 1394 and/or any other electrical or optical interface that may be available. A preferred embodiment would contain USB and 1394 digital interface, since these are becoming the most common for digital multimedia outputs at this time. A Central Processor (502) could be connected to a plurality of circuitry that would convert data streams into data streams and/or signals usable by a Data Interface (506) and its helper circuitry if it exists.

It is important to note that an embodiment of a User Apparatus (102a) could be a computer with multimedia capabilities, an internet connection, and the proper code to communicate with a Content Control System (100). Such a system could have software written as native processor code, could be a part of another application (helper), such as Dynamic Link Library (DLL) in a Windows Environment, it could be a Java application running standalone, or within a browser, or any other type of application, or execution method available to computers, and any format of any kind.

Further it is important to note, that a User Apparatus (102a) need not be a stand-alone device. A User Apparatus (102a) functionality could be integrated, or embedded in other devices, such as a CD player, a DVD player, or any other electronic device, including all types of consumer electronic devices, such as TV, VCRs, CD Players, DVDs, etc...

The user device of Figure 12 is used as follows: a first step in building a simple embodiment of a User Apparatus (102a) would be to configure a Windows

98 PC, with an industry standard audio card, a modem, dial-up software for internet access or a Network card, with the proper drivers, and a connection to a network that has access to the internet.

5 A next step would be to install or create a simple HTTP server, and develop appropriate scripts or other applications that are needed to communicate with a Content Control System (100).

A next step could be to install or create a stand-alone or plug-in version of a streaming audio/video/other program, such as Real-Video, Real-Audio (such as G2) or Microsoft Netshow, or some other client software.

10 A next step would be to create a Java, C, or other program that is capable of communicating with the computer, its audio device, helper applications (if necessary, such as Netshow or G2), and communicate with a Content Control System (100).

15 To develop this simple embodiment of a User Apparatus (102a) usable would require a developer knowledgeable in TCP-IP programming, Java, C or some other programming language capable of programming for a Windows API, and internet and plug-in, DLL programming. It would be helpful to have experience in Microsoft DirectX programming, such as DirectShow.

20 Figure 13 is an embodiment of a Radio Channel Content Broadcast, utilizing a Content Control System (100), and a User Apparatus (102), connected through a Communication Network (101), as an embodiment of a method executing such a service. What is described in Figure 13 are the basic functional blocks of connection, with a description of possible execution steps needed to initiate such a service.

25 To implement an embodiment of a plurality of a Radio Station Channel (600) for availability and content delivery to a User Apparatus (102), will initially require the availability of the audio content, potentially play-list information, and proper database entries into a Content Control System (100).

30 First a traditional Radio Station (600) could maintain an Encoding System (601), which would typically be a computer on local premises which is capable of

Analog or digital input to one of the many Coder/Decoders (CODEC) available for audio, and distributeable by a Content Control System (100), which can include, but not be limited to, H323, GSM, MPEG-1 layer 3 (MP3), CELP, ACELP, etc. This device need not be a computer, and could be a simple "black box" with audio in and data out capabilities.

This embodiment of an Encoding System (601) could be connected via modem, or some other interface to gain a direct, or Internet connection via a Communication Network (101).

A Radio Station (600) may also maintain, through computer control, or manual data entry, a list of currently playing songs, commercials, or content, known as a Play-List (602) system. This system can produce real-time content play, or can be preprogrammed, based on time and data parameters and send in batch mode to a Content Control System (100). A Play-List (602) system can be connected via links through a Communication Network (101) into a Content Control System (100).

With Digital Audio data, and possibly Play-List information now sent through a Communication Network (101) to a Content Control System (100), processing can begin. As described above, a Media Locator (303) file would have been created for this radio station so that a Content Control System (100) knows the needed information about a item of Content, in this case a Radio Station (600). A Content Control System (100) would take the data sent to it by an Encoding Server (601), and route it to a Content Stream Module (204) within its control.

At this point, a Content Control System (100) at least has a few records in a various tables located on a Database Management Module (205), including, but not limited to, a Media Locator (303) record, a Content Descriptor (304) record, a Zone (314) record, a Content (300) record, and potentially a Play-List (305) record, of which an example embodiment of data entered in such tables, and used for example purposes might be:

[Media Locator:] (303)

ML\_ID = 1002

Content\_type = FM  
Global\_ID = WHTZ  
DESCRIPTOR\_ID = 1201  
TRIAL\_ML\_ID = (empty)  
5 License\_req = NO  
ML\_ID\_top = (empty)  
CONTENT\_PTR = 1002  
THEME\_Ids = 1A  
[Content Descriptor:] (304)  
10 DESCRIPTOR\_ID = 1201  
ZONE\_ID = 101  
Freq. # = 100.3  
Tag\_Name = Z-100  
Info = (misc info)  
15 [Zone:] (314)  
Zone\_ID = 101  
Zone1 = New York  
Zone2 = Metro  
[Theme:] (302)  
20 THEME\_ID = 1A  
Theme\_type = FM  
Description = ROCK  
[Play-List:] (305)  
ML\_ID = 1002  
25 Content\_ML\_ID = 1234x23  
Start\_date = (empty)  
Start\_time = (empty)  
[Content:] (300)  
CONTENT\_PTR = 1002  
30 FServer = radio.streams

Flocation	= z100.ra
LServer	= radio.logos
Llocation	= z100.gif

5           The basic steps for a content provider, in this case a Radio Station (600), which could have been an Audio, video, or data content provider (Radio, Television or other video real-time channel, live concert, etc...), to provide a form of digital content into a state usable and managed by a Content Control System (100) are provided. At this point, a User Apparatus (102) requests, receives, and  
10           potentially plays this content.

          A User Apparatus (102) as defined above in an embodiment, will need to be powered on, connected to a Communication Network (101), and logged into a Content Control System (100). For illustrative purposes, lets assume the a User Apparatus (102) as discussed is connected to an amplifier/receiver, and is capable  
15           of sending a stereo output signal to such device, and that device is capable of output to a speaker system.

          Suppose a user of a User Apparatus enters PlayMode "FM", and selects 'Z100' as the station he/she would like to listen to. At this point, a User Apparatus (102) would send a request to a Content Control System (100), specifically a  
20           Control Module (200), such request in an embodiment might be:

          Destination address:

          fm.stream.content\_control.com/select.asp

          Parameters might be:

          PLAYMODE=FM

25           NAME                =Z100

          At this point, a Control Module (200), would process the request, and query the various database tables, potentially including, but not limited to, a Media Locator (303), A Content Descriptor (304), a Content (300) table. A result will supply a content pointer for a Control Module (200) to hand off the information



(perhaps (1) user ID, (2) Password, (3) IP Address, and other information), to a Service Control Module (202).

A Service Control Module (202) will then update needed databases, modify the User (309) table to indicate the ML\_ID being used, and send information to a User Apparatus (102) that made the request with needed info to begin receiving the streamed content. Further, the Service Control Module (202) will send the appropriate commands to a Content Stream Module (204) to authorize and begin a stream of the said content to a User Apparatus bearing the information given.

At this point, a User Apparatus (102), and a Content Stream Module (204) are connected through a Communication Network (101), and said Content Stream Module (204) is sending digital information streams to a User Apparatus (102).

Upon receipt of the Digital information, a User Apparatus (102) can take the steps necessary, which can include, but not be limited to, (1) data grouping, (2) data re-syncing, (3) data decoding, (4) sending data to a plurality of output ports or devices. In this embodiment, the data could be received, decoded, and sent to a D/A converter (Digital to Analog), which then provides Audio Output (603) through one RCA type plug for Left, and another for Right channels of a stereo audio signal.

Simultaneously to a stream being sent to a User Apparatus (102), a Service Control Module (202) can have an application that is monitoring Play-List changes. Assume that this application detects that an update is made to the Channel that the user is listening to, then at this point, a Service Control Module (202) could send a message to a User Apparatus (102) with the updated information, including, but not limited to, (1) ML\_ID for reference, (2) maybe the actual Name of the Artist, or Commercial owner, (3) maybe a Song Title, or Commercial Title, or any other useful information. An example of this transaction could be:

Send to address:

[(user\_Apparatus\_ip\_address):80]

## Parameters:

ACTION = PLAYLISTUPDATE

ML\_ID = 3044

ARTIST = U2

TITLE = With or Without You

At this point, a User Apparatus can use this information to update a visual display, and store record pointers for potential use later (such as Trial Mode, as described above).

Figure 14 is an embodiment of an Audio-On-Demand and Trial Mode content selection and retrieval method, utilizing a Content Control System (100), and a User Apparatus (102), connected through a Communication Network (101).

The basic functional blocks of connection, with a description of possible execution steps needed to initiate such a service is provided.

To implement an embodiment of a plurality of an Audio-On-Demand service for availability and content delivery to a User Apparatus (102), will initially require the availability of the audio content, and proper database entries into a Content Control System (100).

In this embodiment, traditional Fixed-Form (700) media must be converted into digital data utilizing an Encoding System (701), which would typically be a computer which is capable of reading a Fixed-Form (700) media, which such Fixed-Form (700) can include but not be limited to, Tape, DVD or Compact Disc. The content read must be encoded in a plurality of Coder/Decoder (CODEC) based on an embodiment of a Content Control System 100) and the capabilities it could offer to a User Apparatus (102). A CODEC can include, but not be limited to, H.323, GSM, MPEG-1 layer 3 (MP3), CELP, ACELP, etc. This device need not be a computer, and could be a simple "black box" with audio in and data out capabilities.

This embodiment of an Encoding System (701) could be connected via modem, or some other interface to gain a direct, or Internet connection via a Communication Network (101).

5 A description of the encoded material (perhaps Artist, title, tracks, length, publisher, etc...) can be entered through a Content Description System (702), either through computer control, or manual data entry. Such information will be used to properly store, and connect content to individual Media Locator (303) records, Content (300), Content Descriptor (304), and others. In this embodiment, the encoded content would be stored in a Content Control System (100) storage  
10 system, and would then be managed, tracked and maintained through the services and functions provided by a Content Control System (100), and a Content Management System (201) within a Content Control System (100). With Digital Audio data, and description and database tables updated, the process can begin.

15 As described above, a Media Locator (303) file would have been created for this audio content so that a Content Control System (100) knows the needed information about an item of Content, in this case an Audio file.

At this point, a Content Control System (100) at least has a few records in a various tables located on a Database Management Module (205), including, but not limited to, a Media Locator (303) record, a Content Descriptor (304) record, a  
20 Zone (314) record, a Content (300) record, of which an example embodiment of data entered in such tables, and used for example purposes might be:

[Media Locator:] (303)

ML\_ID = 1003

Content\_type = AUDIO

25 Global\_ID = 245876

DESCRIPTOR\_ID = 1202

TRIAL\_ML\_ID = 1004

License\_req = YES

ML\_ID\_top = 1012

30 CONTENT\_PTR = 1003

THEME\_Ids = 1B

[Content Descriptor:] (304)

DESCRIPTOR\_ID = 1202

ZONE\_ID = 001

5 Freq. # = (empty)

Tag\_Name = With or Without You

Info = (U2, Joshua Tree)

[Zone:] (314)

Zone\_ID = 001

10 Zone1 = Audio

Zone2 = Album

[Theme:] (302)

THEME\_ID = 1B

Theme\_type = AUDIO

15 Description = ROCK

[Content:] (300)

CONTENT\_PTR = 1003

FServer = Audio.u.streams

Flocation = wwy01.ra

20 LServer = audio.u.logos

Llocation = Josh001.gif

The basic steps to enter a plurality of Fixed-Store (700) media into the system, to provide a form of digital content into a state usable and managed by a Content Control System (100) are provided. At this point, a User Apparatus (102) requests, receives, and potentially plays this content.

25

A User Apparatus (102) as defined above is powered on, connected to a Communication Network (101), and logged into a Content Control System (100). For illustrative purposes, lets assume that a User Apparatus (102) is connected to

an amplifier/receiver, and is capable of sending a stereo output signal (704) to such device, and that device is capable of output to a speaker system.

Suppose a user of a User Apparatus enters PlayMode "AUDIO", and selects 'With or Without you' (there are many ways to select content, lets assume a menu was viewed, and a ML\_ID was sent to the User Apparatus that Points to the desired content). At this point, a User Apparatus (102) would send a request to a Content Control System (100), specifically a Control Module (200), such request in an embodiment might be:

Destination address:

audio.stream.content\_control.com/select.asp

Parameters might be:

PLAYMODE=AUDIO

ML\_ID =1003

At this point, a Control Module (200), would process the request, and query the various database tables, potentially including, but not limited to, a Media Locator (303), A Content Descriptor (304), a Content (300) table. A result will supply a content pointer for a Control Module (200) to hand off the information (perhaps (1) user ID, (2) Password, (3) IP Address, and other information), to a Service Control Module (202).

Because this content is marked as "License Needed", a Control Module (200), could then check the License (312) database to insure proper authorizations.

A Service Control Module (202) will then update needed databases, modify the User (309) table to indicate the ML\_ID being used, and send information to a User Apparatus (102) that made the request with needed info to begin receiving the streamed content. Further, the Service Control Module (202) will send the appropriate commands to a Content Stream Module (204) to authorize and begin a stream of the said content to a User Apparatus bearing the information given.

At this point, a User Apparatus (102), and a Content Stream Module (204) are connected through a Communication Network (101), and said Content Stream Module (204) is sending digital information streams to a User Apparatus (102).

Upon receipt of the Digital information, a User Apparatus (102) can take the steps necessary, which can include, but not be limited to, (1) data grouping, (2) data re-syncing, (3) data decoding, (4) sending data to a plurality of output ports or devices. In this embodiment, the data could be received, decoded, and sent to a D/A converter (Digital to Analog), which then provides one RCA type plug for Left, and another for Right channels of a stereo audio signal.

Simultaneously to a stream being sent to a User Apparatus (102), a Service Control Module (202) can have an application that is monitoring Play-List changes (such as end of song). Assume that this application detects that an end-of-song is reached, then at this point, a Service Control Module (202) could send a message to a User Apparatus (102) with the updated information related to the next title (if an album, and a link between songs is established), including, but not limited to, (1) ML\_ID for reference, (2) maybe the actual Name of the Artist, or Commercial owner, (3) maybe a Song Title, or Commercial Title, or any other useful information. An example of this transaction could be:

Send to address:

[(user\_Apparatus\_ip\_address):80]

Parameters:

ACTION = TITLECHANGE

ML\_ID = 3045

ARTIST = U2

TITLE = Bullet the Blue Sky

At this point, a User Apparatus can use this information to update a visual display, and store record pointers for potential use later (such as Trial Mode, as described above), and further begin retrieving a new data stream with said content.

Figure 15 is an embodiment of a User Apparatus (102) embodiment from an interface, and/or look-and-feel. It is important to note that this is for illustrative purposes only, and may not be used to limit the scope and spirit of this invention, including but not limited to (1) features and functions, (2) content type, (3) user manipulation, (4) product and feature integration with other devices or networks or content, (5) actual design or interfaces, and any other feature, function, parameter.

Figure 15 shows an embodiment of a User Apparatus (102) front and back look-and-feel, which is in a form of a consumer electronic appliance, similar to that of a CD player, Video Cassette Recorder (VCR), etc.

Similar to the features of a Cassette or Compact Disc player, this embodiment includes Navigation Controls (801), which include, but not be limited to, Stop, Pause, Play, Back track, back, forward, forward track. A Navigation Control (801) could be used during content playback to control the playback of said content.

A LCD display (802) is included in this embodiment which allows for the display of various types of information, that I dynamic as to look and feel, with regard to different options, menus, playback modes, and information available for display. An embodiment of a LCD display (802) in this Figure 15 shows a sample display if a User Apparatus (102) was in FM Radio mode, and tuned to a particular station playing a particular song. This display need not be a LCD display (802), and need not be attached to this device, or sent through a video out signal, perhaps to a TV, whereby the display can be supper-imposed on a TV picture. The options are limitless.

A Find (803) button is found on this embodiment, which would put this device into a search mode. Here you might be able to search for an album, radio station, TV channel, audio book, or any other item of content available. Content could be searched by catalog numbers, names, or scrolling lists, which functions might be navigated through the use of a Menu (806) and/or Selection (807) dial.

Perhaps a user wants to purchase a currently selected item, lets say an album that is playing. By pressing a Buy (804) button, the system could go into a

purchase mode, that would display, price, availability, and options for shipping. The user could enter a password, answer the questions, and instantly gain access to a license to that material purchased. For instance, if a user was listening to a U2 album, The Joshua Tree, and pressed the Buy (804) button, the user then entered a password, entered next day shipping, and accepted the \$12.67 price, the following could happen through an embodiment: (1) a charge is made to a users credit card, (2) a license is granted immediately to the user for on-demand playback, (3) a CD or Tape is mailed to the user, (4) confirmation codes are send back for future reference.

A Mute (805) button could silence the audio output of this device for instant zero volume.

A Menu (806) dial could be made available which turns clockwise, and counterclockwise, and might also have the capability to be "pressed", which could be used to "select" menu, or volume levels, etc... This dial could be used for menu navigation and various other uses.

A Selection (807) dial could be made available which turns clockwise, and counterclockwise, and might also have the capability to be "pressed", which could be used to "select" selection, submenus, or other options. This dial could be used for navigation and various other uses.

A Smart-Card (808) could be included in an embodiment which would allow for conditional access, user preferences, security and hardware information, and more. This could also be used to allow a user to go from one User Apparatus (102) to another, without loosing any license rights, or permissions, or preferences, simply by taking the Smart-Card (808) out of one device, and placing it into another.

A Numeric Keypad (809) could be made available for simple numeric entry.

A Random Play (810) key can be used to allow the User Apparatus to randomly play any of the licensed content that is available to this User or this User Apparatus.



A set of buttons is made available to select a Play Mode (811). These buttons allow for filtered content review, selectability, and organization. In this embodiment, a User Apparatus can only be in one Play Mode at a time. By selecting the "TV" mode, a User Apparatus (102) will gain access, and interact only with Video content on a Content Control System (100). By selecting the "AM" mode, a User Apparatus (102) will gain access, and interact only with content defined as "AM Radio" content on a Content Control System (100). By selecting the "FM" mode, a User Apparatus (102) will gain access, and interact only with content defined as "FM Radio" on a Content Control System (100). By selecting the "TRIAL" mode, a User Apparatus (102) will gain access, and interact with Video and or audio that is not licensed, and is allowed to be "sampled" prior to purchase of a license. The Trial button could be use to sample a currently playing song on a radio station, which would switch from "AM" or "FM" mode into "TRIAL" mode under "ON DEMAND". This can be used in many ways. By selecting the "ON DEMAND" mode, a User Apparatus (102) will gain access, and interact with all licensed Video and audio content for the user on a Content Control System (100). This mode can be used to "find" an album of interest to trial as well.

The back of this embodiment of a User Apparatus (102), contains the connection needed for input, output, and power.

Audio Out (812) plugs are shown in traditional RCA style Left Channel, Right Channel configuration. These plugs usually connect to standard amplifier or receiver equipment, from manufacturers such as Sony, etc... Below Left and Right, are SR-L (surround Sound Left Channel), SR-R (surround sound Right Channel), SUB (subwoofer), and there could be mode, such as SR-C (surround sound Center channel), etc... This is not meant to be limiting.

If audio in capabilities are available, the Audio In (813) could have RCA Style Plugs for Stereo Left and Right.

Newer devices contain Digital Audio (814) output, in this case, Dolby AC-3 outputs, which could as well be fiber optic connections.

For User Apparatus with Video Out (815) capabilities, this embodiment shows a Super Video (S-Video), a Composite RCA Style Plug, and an Antenna In and Antenna Out connector.

5 This embodiment shows two forms of Network Interface (816), which includes one modem port to plug into a telephone jack, and an Ethernet port which could plug into any Ethernet network, including DSL, Cable Modem, Computer Networks, etc...

Digital Interfaces (819) can also be included, such as 1394 (FireWire), and USB ports among many others. These are becoming popular, so they are showed  
10 here. These ports can connect to other equipment for both input and output.

Finally, a Power Plug (817) is used to supply power, and the unit is protected from power surges through a Fuse (818).

15 While the invention has been described above by reference to various embodiments, it will be understood that many changes and modifications can be made without departing from the scope of the invention. For example, different sources of product and service information may be included. Different types of media may be used. Different types of communications, whether wireless or wired, may be used. Various functionalities discussed above may be implemented  
20 using any of various individual or multiple processors or other components now known or later developed. Additional functionality may be provided internal to the user device 40 or as part of an expansion connected through an expansion port.

It is therefore intended that the foregoing detailed description be  
25 understood as an illustration of the presently preferred embodiments of the invention, and not as a definition of the invention. It is only the following claims, including all equivalents that are intended to define the scope of the invention.

## CLAIMS

What is claimed is:

1. An interactive transaction multiple purpose device comprising:  
a memory operative to store an identification of a source of financial  
5 information for use over time with multiple transactions;  
a first transmitter operable to transmit transactional information  
including the identification; and  
at least one of: a television remote controller, a pager, a universal  
remote, a radio remote controller, a cellular telephone, and combinations thereof.
- 10 2. The device of Claim 1 further comprising a smart card reader  
operable to obtain the identification of the source of financial information.
3. The device of Claim 1 further comprising a credit card reader  
operable to obtain the identification of the source of financial information.
- 15 4. The device of Claim 1 wherein the device comprises a television  
remote control.
5. The device of Claim 1 wherein the device comprises a pager.
6. The device of Claim 1 wherein the device comprises a radio remote  
controller.
- 20 7. The device of Claim 1 wherein the device comprises a universal  
remote controller.
8. The device of Claim 1 wherein the device comprises a cellular  
telephone.
9. The device of Claim 1 wherein the device further comprises a  
personal data assistant.

10. The device of Claim 1 further comprising a bar code reader wherein the transactional information is responsive to the bar code reader.

11. The device of Claim 1 further comprising a manual user input device.

5 12. The device of Claim 1 further comprising a memory operable to store program guide and corresponding product or service information.

13. The device of Claim 1 further comprising a memory operable store information corresponding to a plurality of products or services wherein the transaction information is responsive to a selected one of the products or services.

10 14. The device of Claim 12 further comprising a display operable to display at least some of the product or service information.

15. The device of Claim 1 wherein the first transmitter comprises a radio frequency wireless transceiver.

15 16. The device of Claim 11 further comprising a purchase selection and an information request selection.

17. The device of Claim 14 wherein the display is operable to display order status information.

18. The device of Claim 1 wherein the transaction information comprises product purchase information.

20 19. The device of Claim 1 further comprising a bio-metric reader operable to control transmission of the identification.

20. An electronic transaction device comprising:  
a memory operative to store an identification of a source of financial information for use over time with multiple transactions;

a first data path operable to receive transaction information from a computer; and

a second data path operable to transmit the transaction information and the identification to a remote site, the second data path being free of the computer.

21. The device of Claim 20 further comprising a smart card reader operable to read the identification.

22. The device of Claim 20 further comprising a bio-metric reader operable to control transmission of the identification.

23. The device of Claim 20 further comprising a credit card reader operable to read the identification.

24. The device of Claim 20 wherein the first data path comprises a wireless connection of the device to the computer.

25. The device of Claim 20 wherein the second data path comprises a radio frequency wireless data path.

26. The device of Claim 20 further comprising a bar code reader wherein the second data path is operable to transmit the identification and product or service information responsive to the bar code reader.

27. The device of Claim 20 wherein the transaction information comprises product or service information from a publicly accessible communications network web page.

28. The device of Claim 20 wherein the source of financial information comprises one of: a credit card, a debit card, a smart card, a savings account, a checking account and combinations thereof.

29. The device of Claim 20 wherein the second data path comprises a path independent of the publicly accessible communications network connection with the computer.

5 30. The device of Claim 29 used in a system wherein the remote site is operable to transfer the transaction information to an entity responsible for the publicly accessible communications network web page content and operable to arrange for payment of a product independent of the publicly accessible communications network.

10 31. The device of Claim 27 used in a system wherein the publicly accessible communications network web page content includes software operable provide the transaction information comprising product or service cost and identity.

32. An electronic impulse purchase or information request device for Internet, intranet or other computer networks, the device comprising:

15 a receiver comprising a first communications path operable to receive transaction information from a computer;

a processor operable to reformat the transaction information; and

20 a transmitter comprising a second communications path operable to transmit the reformatted transaction information, the second communications path being free of the computer.

33. The device of Claim 32 further comprising a memory operative to store an identification of a source of financial information for use over time with multiple transactions.

25 34. The device of Claim 32 wherein the second communications path comprises a radio frequency wireless data path.

35. The device of Claim 32 wherein the transaction information comprises product or service information from an Publicly accessible communications network web page.

5 36. The device of Claim 32 wherein the second communications path comprises a path free of the Publicly accessible communications network connection with the computer.

37. A product or information request transaction device comprising:  
a reader operable to read transaction related data from an object local to the transaction device;  
10 a memory operative to store an identification of a source of financial information for use with a transaction;  
a receiver operable to receive product or service information corresponding to a plurality of products or services;  
a memory operable to store the product or service information; and  
15 a transmitter operable to transmit a product or service code associated with one of the plurality of products or services, the identification and the transaction related data.

38. The device of Claim 37 wherein the receiver is further operable to receive program guide information corresponding to a plurality of broadcast  
20 sources.

39. The device of Claim 38 further comprising a display operable to display the product or service information synchronized with programming from the broadcast source.

40. The device of Claim 37 further comprising a remote controller  
25 operable to remotely control a broadcast programming receiver.

41. The device of Claim 37 wherein the reader comprises a smart card reader and the information from the card reader comprises account data for payment of the one product.

5 42. The device of Claim 37 wherein the reader comprises a credit card reader and the information from the card reader comprises account data to charge a payment for the one product.

43. The device of Claim 37 wherein the reader comprises a bar code reader operable to read coupon information, wherein the transmitter is operable to transmit the coupon information.

10 44. A portable help-assisted impulse purchase transaction device comprising:

a memory operative to store an identification of a source of financial information for use over time with multiple transactions;

a memory operative to store a plurality of products or services;

15 a first manual input device for selecting a product transaction associated with one of the plurality of products or services;

a second manual input device for selecting a help function; and

a radio frequency transmitter operable to transmit a request for help in response to the second manual input device and product transaction information;

20 wherein the device is portable.

45. The device of Claim 44 wherein the transmitter comprises a radio frequency wireless transceiver.

25 46. The device of Claim 45 wherein the device comprises a cellular phone.

47. The device of Claim 44 further comprising a display operable to display a selection of products or services corresponding to broadcast content.



48. The device of Claim 47 further comprising a remote controller operable to remotely control an electronic receiver of the broadcast content.

49. A method for obtaining help with a transaction multiple purpose device, the method comprising the acts of:

- 5 (a) storing financial information and product or service information in the device;
- (b) providing on the device a button for selecting a product transaction;
- (c) providing on the device a button for requesting help;
- 10 (d) transmitting a request for help and product transaction information from the device; and
- (e) calling a user of the device in response to (d).

50. The method of Claim 49 wherein (e) comprises calling a number corresponding to the device wherein the device comprises a cellular phone.

15 51. An impulse transaction electronic device comprising:  
a receiver operable to receive product or service information;  
a transmitter operable to transmit transaction information associated with said product or service information;  
a first manual input device associated with a buy transaction; and  
20 a second manual input device associated with an information request transaction.

52. The device of Claim 51 wherein at least one of the first and second manual input devices comprises a software generated button on a display.

25 53. The device of Claim 51 wherein at least one of the first and second manual input devices comprises a micro-phone and voice recognition circuitry.

54. The device of Claim 51 further comprising a memory operative to store an identification of a source of financial information for use over time with multiple transactions.

5 55. The device of Claim 54 wherein the memory is operative to store a plurality of identifications of respective sources of financial information, at least two of the identification corresponding to two different users; and  
further comprising a third manual input device associated with a user identification.

10 56. The device of Claim 51 wherein at least one of the first and second manual input devices comprises a generic button associated with a cursor on a display.

57. The device of Claim 51 wherein the first and second manual input devices comprise a single device responsive to a data selection.

15 58. The device of Claim 51 wherein the receiver is operable to receive program guide information for a plurality of programming sources and the product or service information comprises product or service information associated with advertisements to be separately broadcast.

20 59. The device of Claim 51 further comprising a remote controller operable to remotely control a receiver of programming broadcasts associated with the product or service information.

60. The device of Claim 51 further comprising a reader operable to provide financial information associated with the transaction information.

61. The device of Claim 51 further comprising a display operable to display a transaction status.

25 62. An impulse transaction electronic device comprising:

a memory operable to store broadcast programming guide information including product or service information corresponding to at least two broadcasting sources;

a button operable to allow selection of the product or service information;

wherein the device comprises a portable device.

63. The device of Claim 62 further comprising a radio frequency wireless transceiver.

64. The device of Claim 62 further comprising a transmitter operable to transmit a selected transaction associated with a selected product or service.

65. The device of Claim 64 wherein the selected transaction comprises a purchase order for a product or service identified in a broadcast advertisement.

66. The device of Claim 62 further comprising a remote controller operable to remotely control a broadcast programming receiver separate from the device.

67. The device of Claim 62 further comprising a reader operable to read transaction related data from an object local to the device.

68. An impulse transaction electronic device comprising:  
a memory operable to store catalog content information including product information;  
a manual user input operable to allow selection of a product;  
a memory operative to store an identification of a source of financial information for use over time with multiple transactions; and  
a transmitter operable to transmit the selected product information and the identification;  
wherein the device comprises a portable device.

69. The device of Claim 68 wherein the store catalog content information comprises product or service information from a plurality of catalogs associated with a respective plurality of different stores.

5 70. The device of Claim 68 further comprising software that is modifiable in response to reception of a radio frequency transmission.

71. The device of Claim 68 further comprising a radio frequency wireless transceiver.

10 72. The device of Claim 68 further comprising a receiver operable to receive the store catalog content information and programming guide information, the programming guide information including additional product or service information;

wherein the manual user input is operable to allow selection of the product or service and an additional product or service, the additional product or service associated with broadcast content.

15 73. An impulse transaction electronic catalog shopping method comprising:

(a) storing in a memory catalog content information including product or service information from a plurality of stores, the product or service information free of a publicly accessible communications network content  
20 download;

(b) displaying on the portable device information for a selected product or service from the product or service information;

(c) storing on the portable device an identification of a source of finances for use with multiple transactions over time; and

25 (d) transmitting from the portable device a selected product or service identification and the identification of the source of finances.

74. An impulse transaction electronic portable wallet device comprising:

a memory operable to store at least two identifications of respective at least two sources of finances for use with a plurality of transactions over time;

5 a manual user input operable to provide selection of one of the at least two identifications; and

a transmitter operable to transmit an authorization to transfer finances and a selected one of the at least two identifications, the transmission being free of Publicly accessible communications network content;

10 wherein the electronic device is portable.

75. The device of Claim 74 wherein the memory is operable to store sources of finances for at least two users;

wherein the manual user input is operable to provide selection in response to a user indication.

15 76. The device of Claim 74 further comprising a receiver operable to receive a transaction amount.

77. The device of Claim 76 wherein the receiver is operable to receive a receipt.

20 78. The device of Claim 74 wherein at least one source of finances comprises a credit card identification.

79. The device of Claim 74 wherein the transmitter comprises a transceiver operable to transfer finances with another portable electronic device.

80. The device of Claim 74 wherein the transmitter comprises an infrared transmitter.

25 81. The device of Claim 80 further comprising a radio frequency wireless transceiver.

82. The device of Claim 81 wherein the radio frequency wireless transceiver is operable to receive product or service information.

83. The method of Claim 73 wherein (a) comprises storing the catalog content information on the portable device.

84. The method of Claim 73 wherein (a) comprises storing the catalog content information at a location remote from the portable device; and further comprising:

(e) transmitting from the portable device to the location remote from the portable device a request for the information for the selected product or service; and

(f) receiving on the portable device the information for the selected product or service.

85. An electronic transaction device for use in a computer comprising: a memory operative to store an identification of a source of financial information for use over time with multiple transactions;

a first data path operable to receive transaction information from a publicly accessible computer network; and

a second data path operable to transmit the transaction information and the identification to a remote site, the second data path being free of the connection from the computer to the publicly accessible computer network.

86. The device of Claim 85 wherein the second data path comprises a wireless radio frequency transmitter.

87. The device of Claim 85 wherein software on the computer controls the memory, first data path and second data paths.

88. The device of Claim 20 wherein the transaction information comprises financial information from software on the computer.

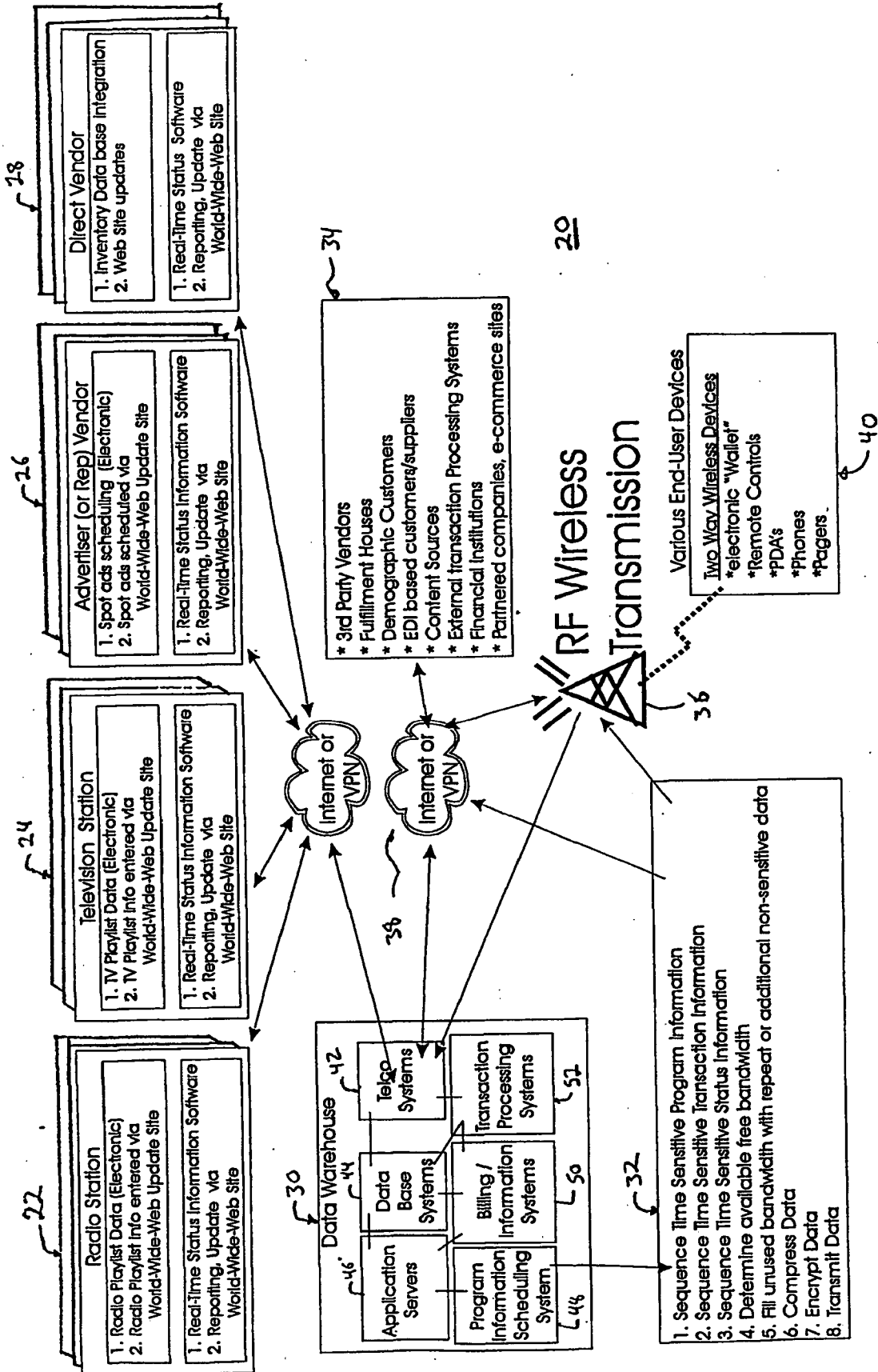


Figure 1



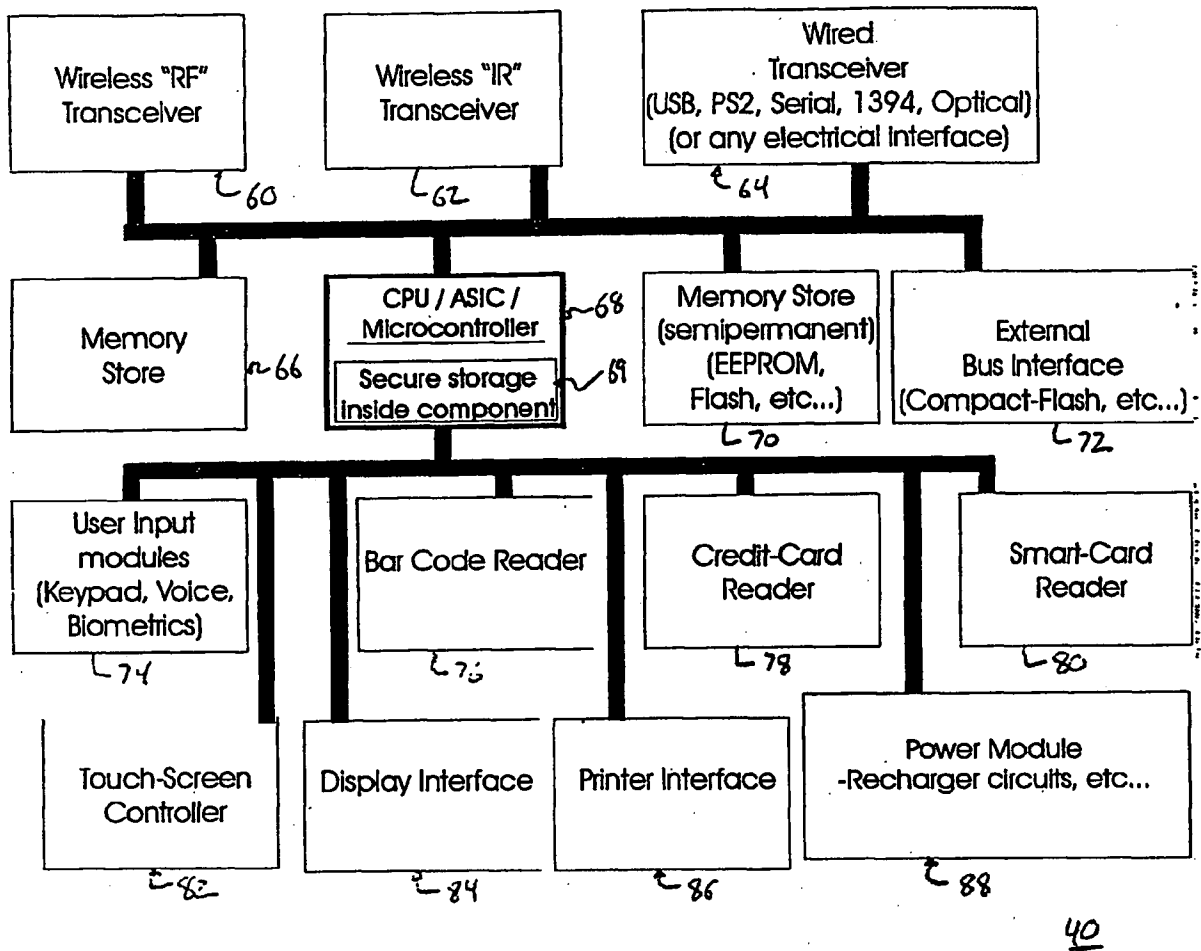


Figure 2

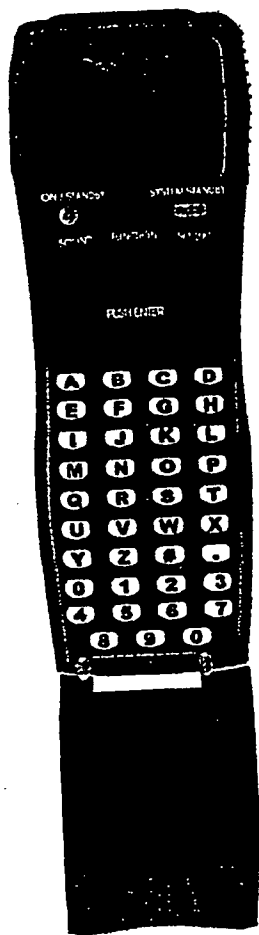


Figure 3

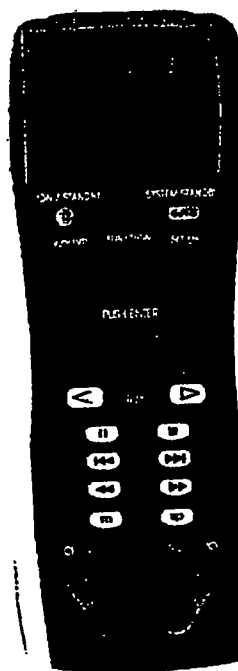


Figure 4

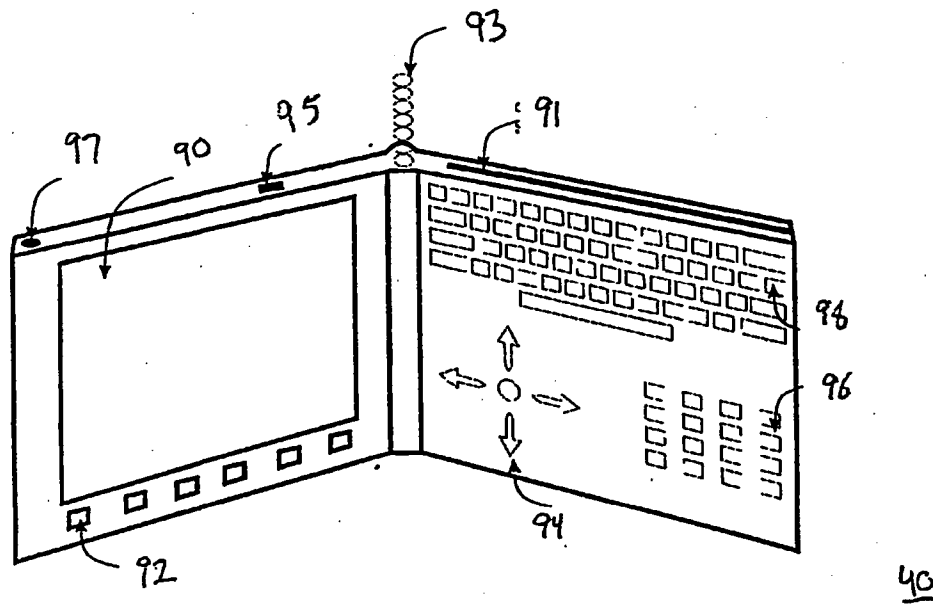
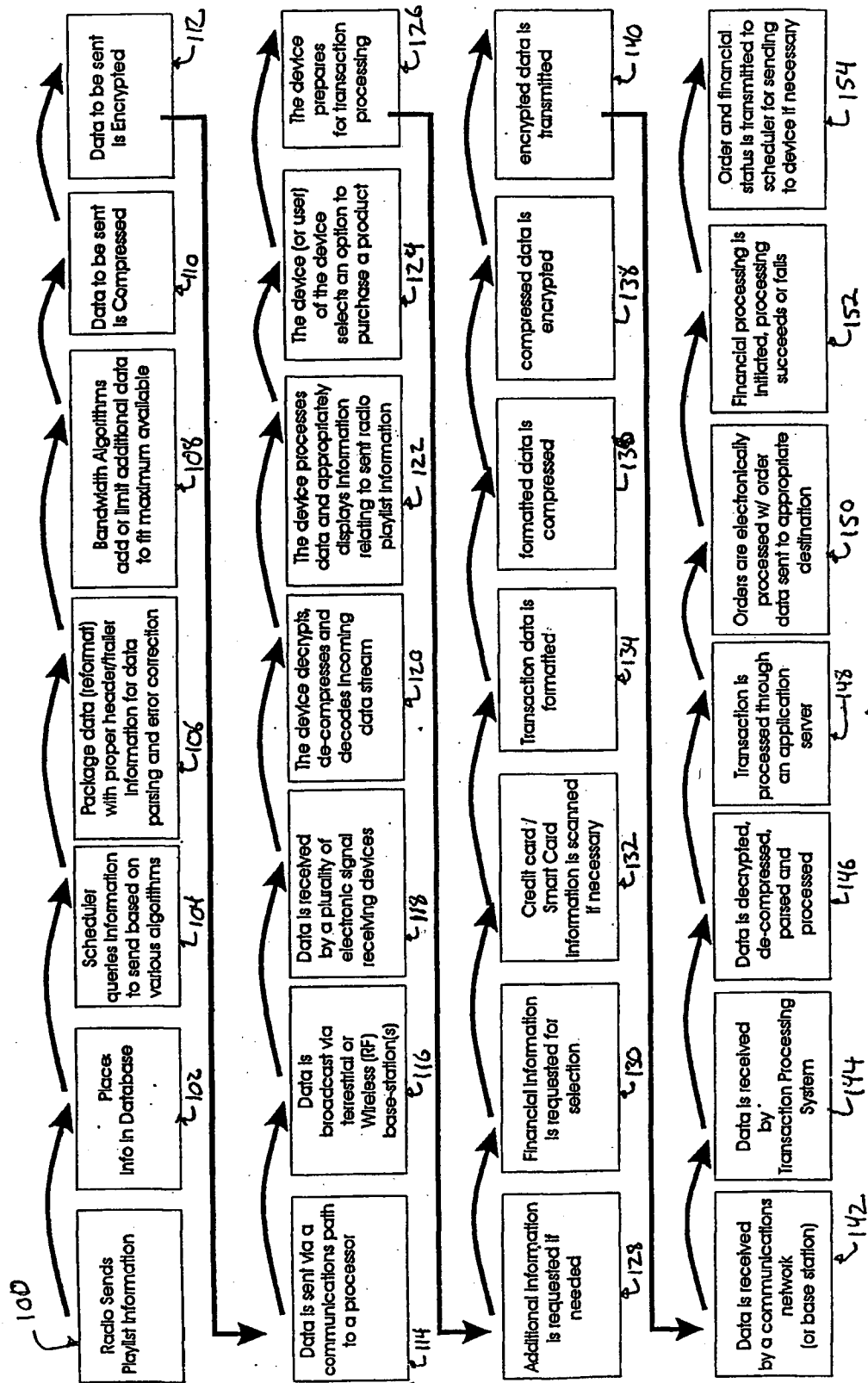


Figure 5



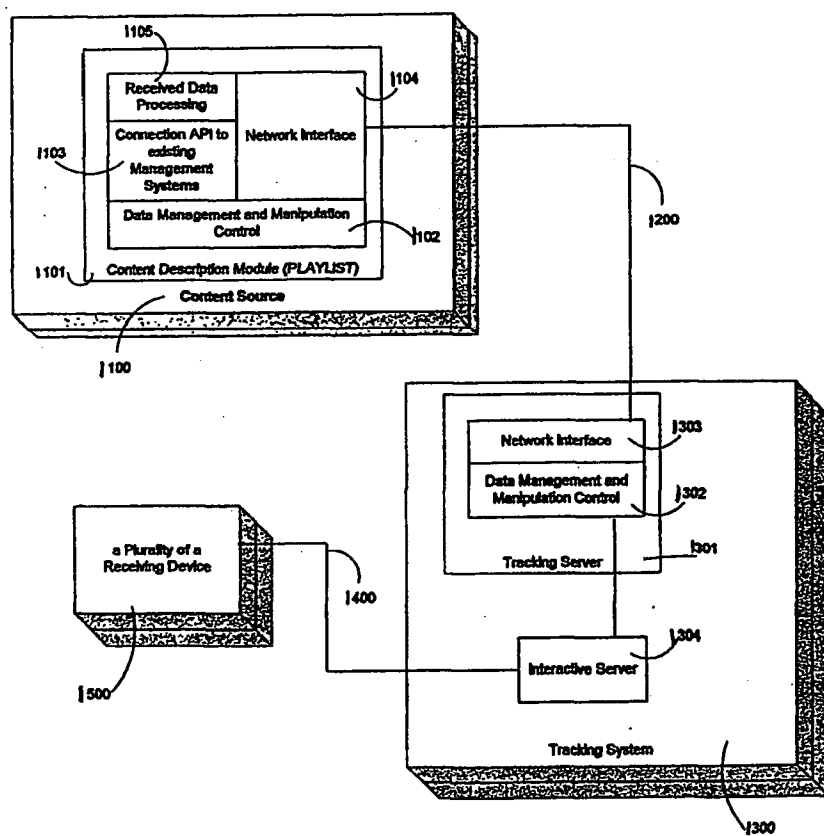


Figure 7

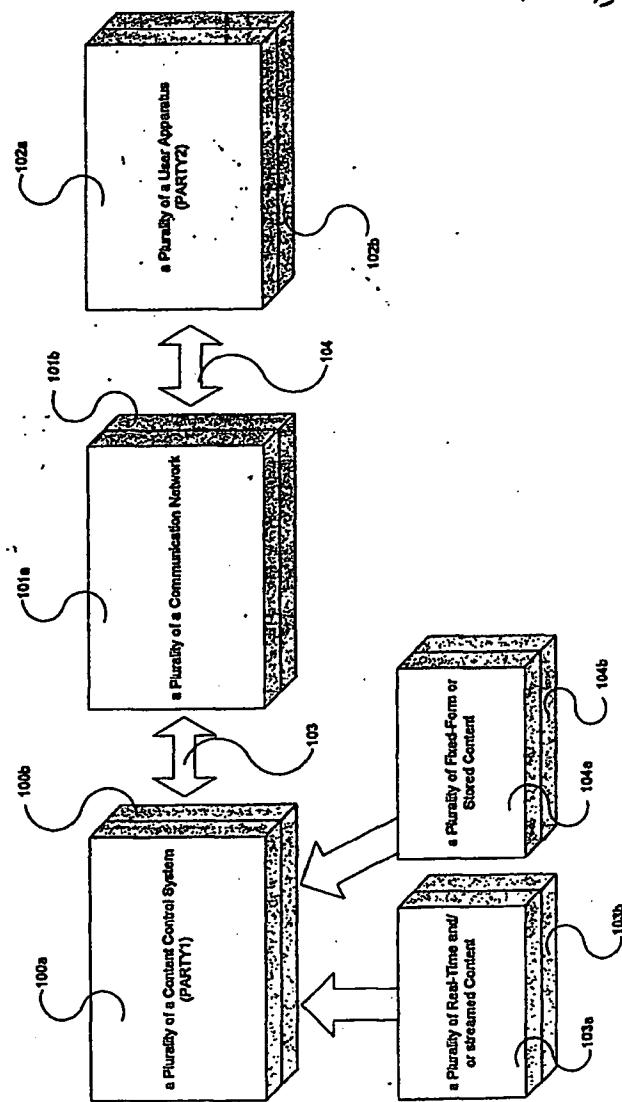


Figure 8

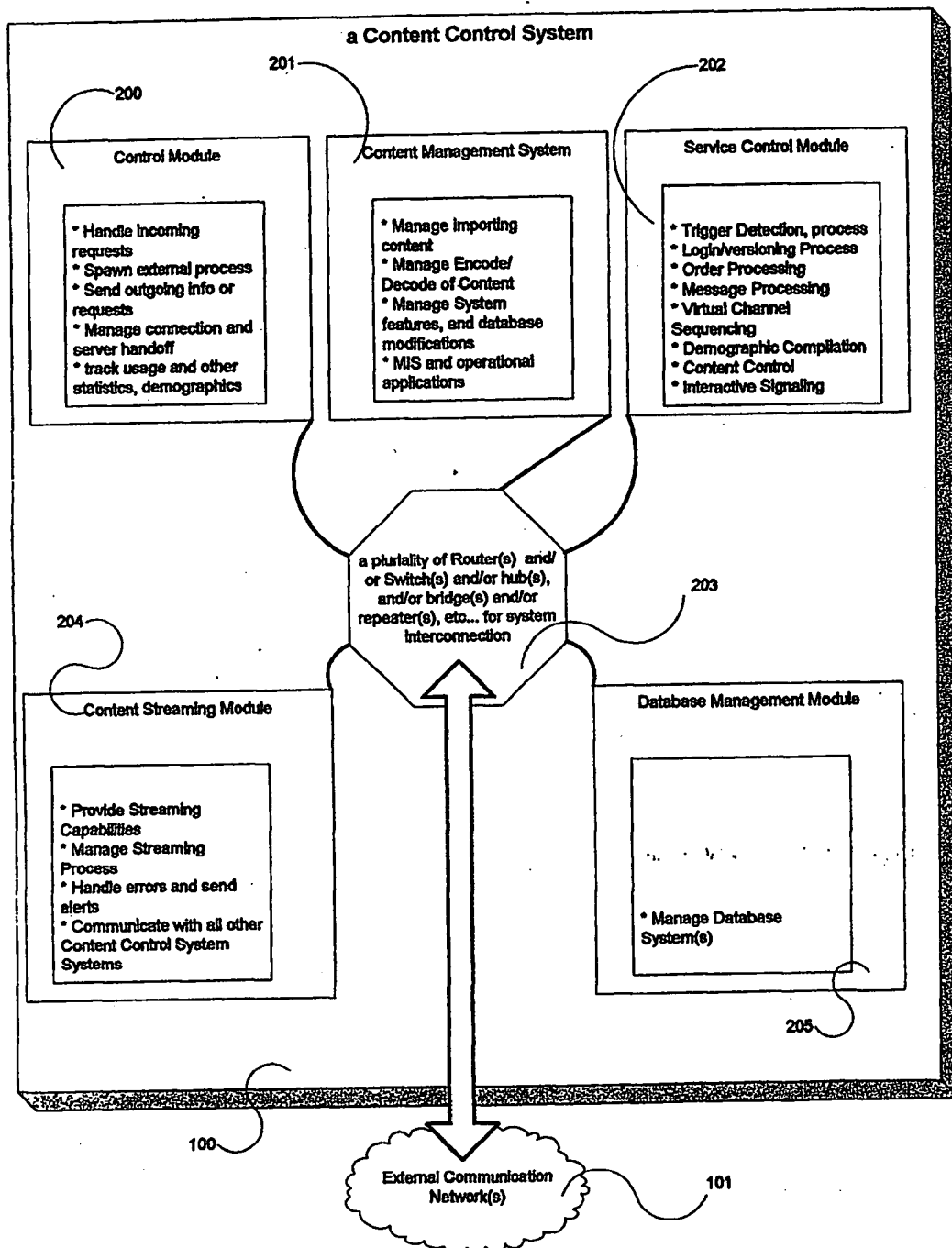


Figure 9

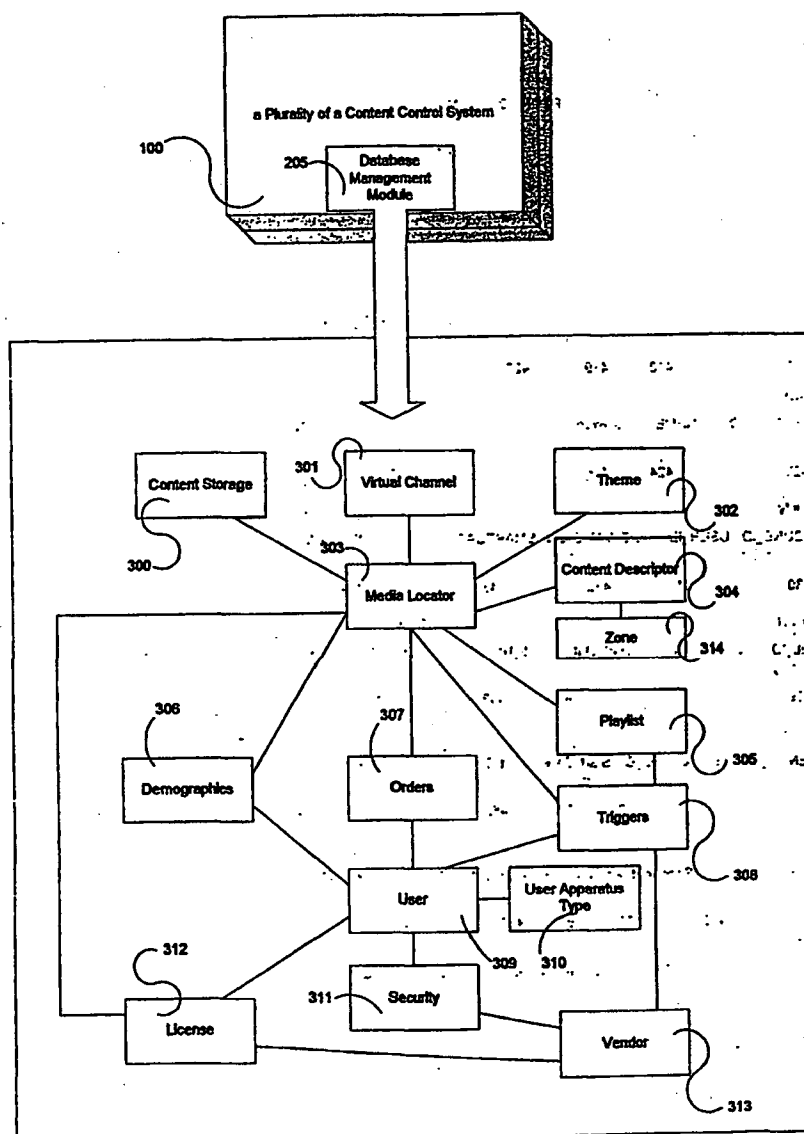


Figure 10



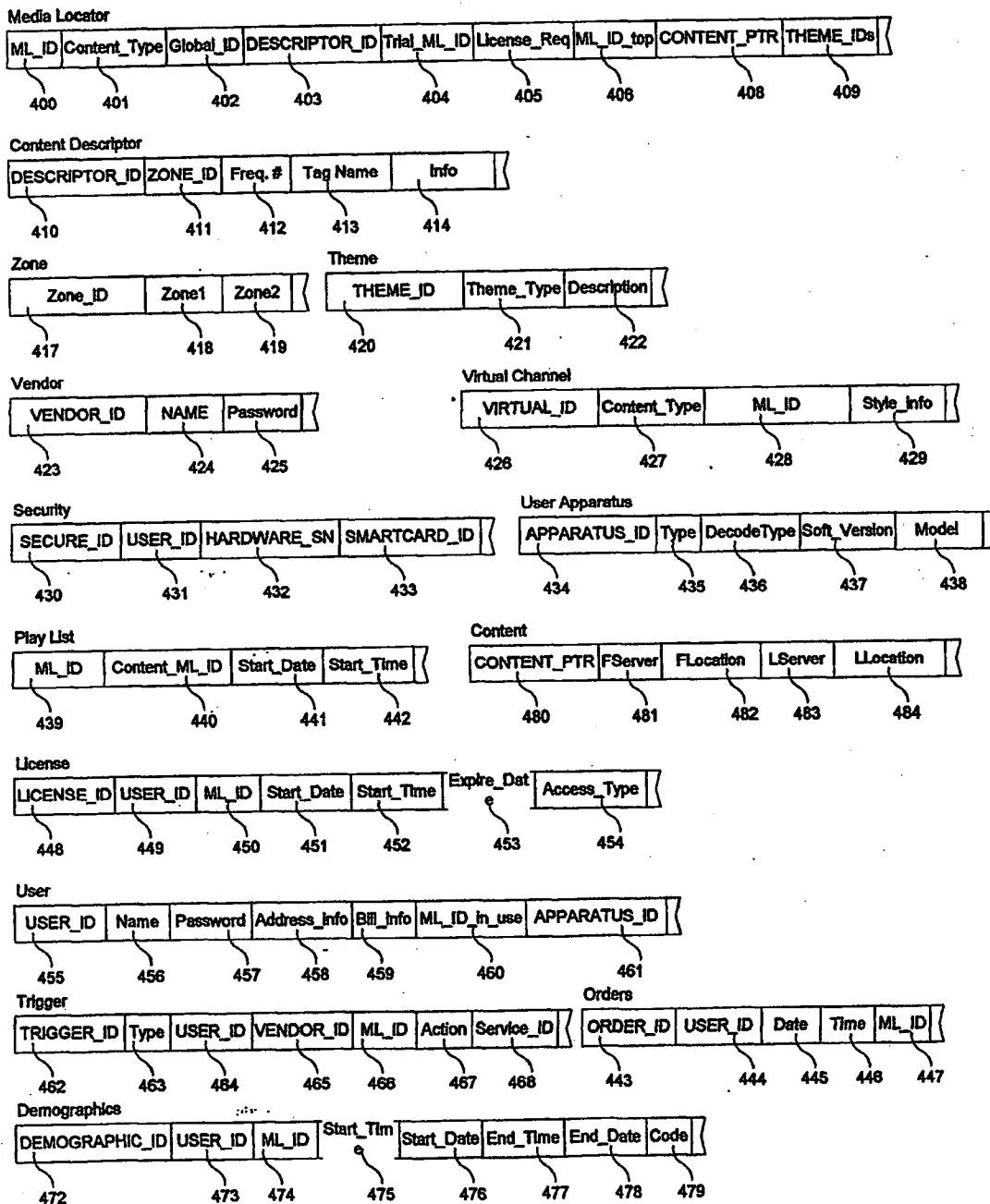


Figure 11

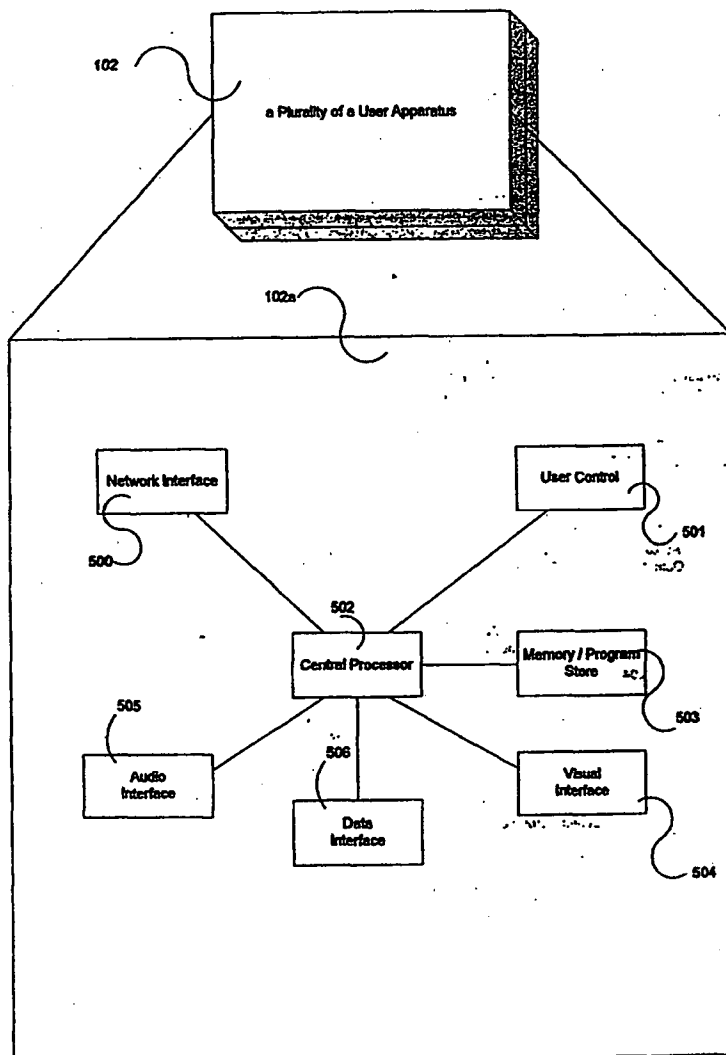


Figure 12

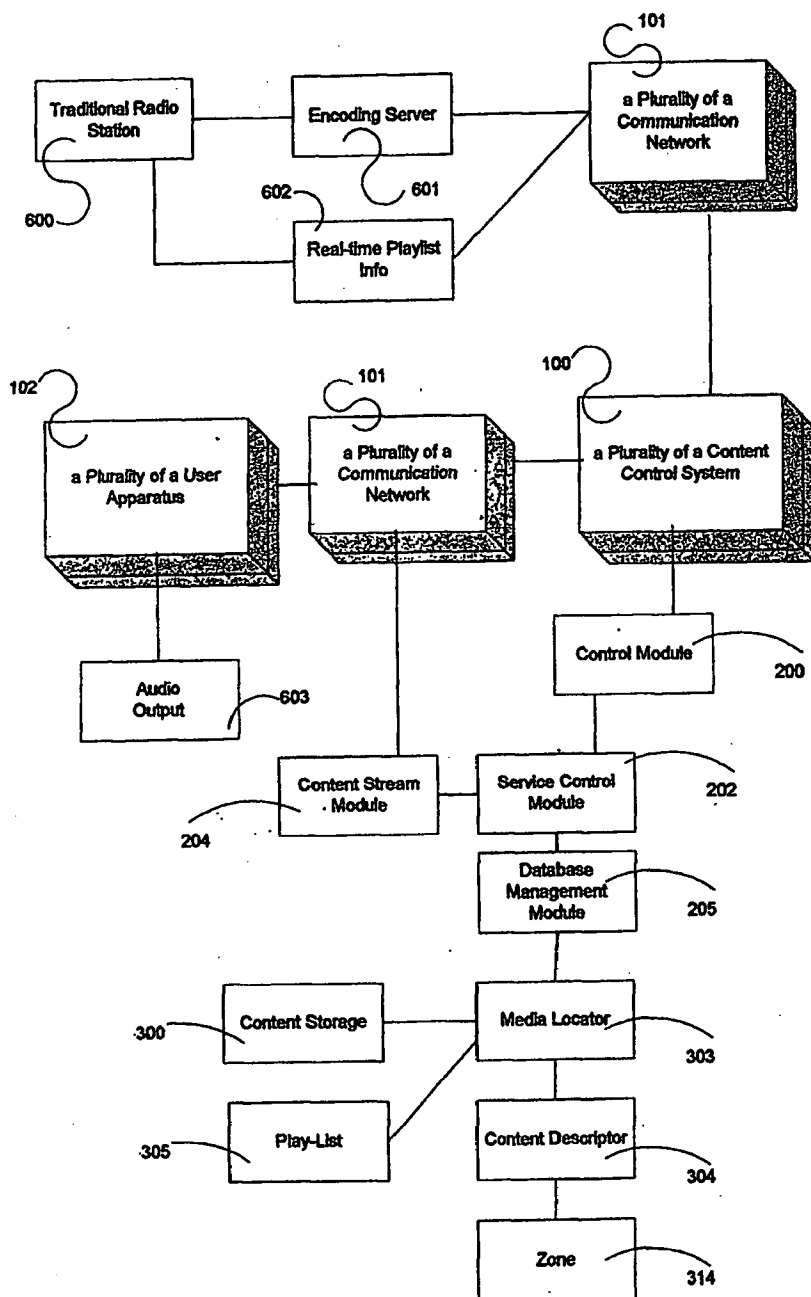


Figure 13

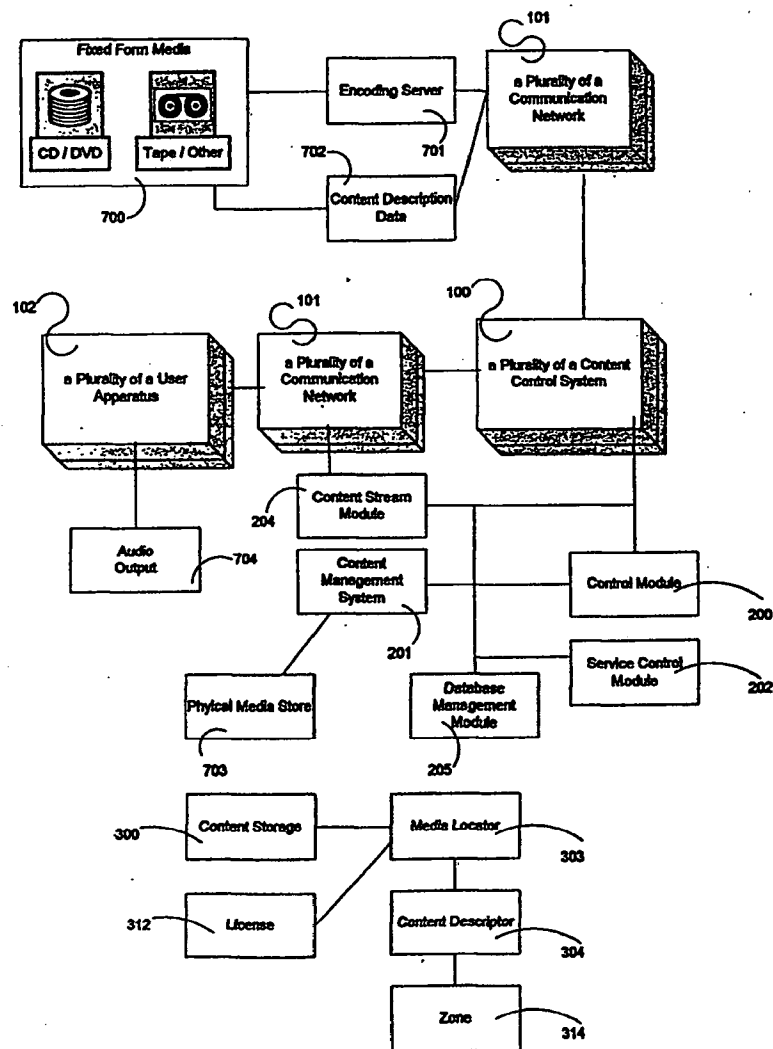
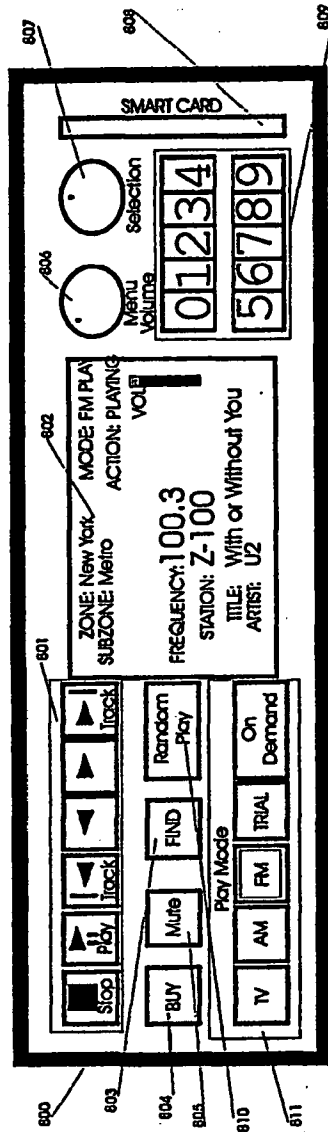
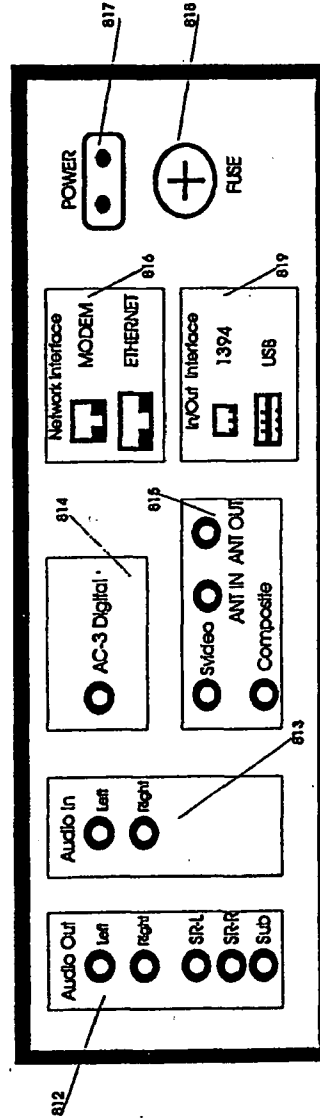


Figure 14



Sample Front Panel to Consumer Appliance Apparatus



Sample Back Panel to Consumer Appliance Apparatus

Figure 15

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/02775

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G06F 17/60

US CL : 705/39

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 235/379, 380, 472; 348/734; 429/100; 455/31.2, 420, 550, 557; 705/1, 14, 26, 27, 39, 41, 44

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST, EAST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,867,795 A (NOVIS et al) 02 February 1999, entire document.	1-3,8,11-25, 27-29, 32-39,41, 42, 44-51, 54-58, 60-65, 67-79, 83-88
Y		4 - 7 , 9 , 10 , 26 , 30 , 31 , 40,43,52,53,59,66, 80-82
Y	US 5,710,605 A (NELSON) 20 January 1998, entire document.	1-88
Y	US 5,606,594 A (REGISTER et al) 25 February 1997, entire document.	1-88

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

14 MARCH 2001

Date of mailing of the international search report

30 APR 2001

Name and mailing address of the ISA/US  
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/02775

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,603,078 A (HENDERSON et al) 11 February 1997, entire document.	1-88
Y	US 5,410,326 A (GOLDSTEIN) 25 April 1995, entire document.	1-88
Y	US 5,365,050 A (WORTHINGTON et al) 15 November 1994, entire document.	1-88
Y	US 5,221,838 A (GUTMAN et al) 22 June 1993, entire document.	1-88
A	US 5,047,614 A (BIANCO) 10 September 1991, entire document.	1-88
A	W0 98/34203 A (JACOBS et al) 06 August 1998, entire document.	1-88
Y	US 5,754,655 (HUGHES et al) 19 May 1998, entire document.	1-88